AGENDA
CITY OF LARAMIE, WYOMING
WORK SESSION
CITY HALL
April 26, 2016 6:00 pm

1. **SPECIAL MEETING**

2. **Public Comments**

3. **WORKSESSION**

3.A. **WORK SESSION: Bill Nye Western Corridor Study: Presentation of Final Draft**
[HUNT, CD Dir]

Documents: 1.Cover Sheet.pdf, 2.Bill Nye Corridor Study Draft Report.pdf, 3.Appendix A-Improvement Plans_FinDft.pdf, 4.Appendix B-Public Meetings.pdf, 5.Appendix C-Presentations.pdf, 6.Appendix D-Cost Estimates.pdf, 7.Appendix E-Traffic Analysis.pdf, 8.Appendix F.pdf

3.B. **WORK SESSION: Presentation of the Pavement Management System**

Documents: CS Pavement Management System Presentation.pdf, Presentation Power Point 4.26.16 LCC.pdf

3.C. **WORK SESSION: Laramie Public Art Coalition Update**
[LPAC/Guerin]

Documents: LPAC Update Cover.pdf, LPAC Update to Council Presentation.pdf

4. **City Council Updates/Council Comments**

5. **Agenda Review**

6. **Public Comments**

CITY OF LARAMIE COUNCIL WORK SESSION April 26, 2016

Agenda Item: Presentation

Title: Bill Nye Western Corridor

Recommended Council MOTION:

Work session; no action can be taken.

Administrative or Policy Goal:

Chapter 8, Transportation's Thoroughfare Improvement and Effective Capacity Management Goals and Action Statements state: "Update the Major Street and Highway Plan based on suggestions found within the plan. Changes are needed to lessen the rigid, non-planned location of many of the roads found in the Major Street and Highway Plan." (pg. 8-19); "Coordinate with WYDOT, Albany County and private property owners in conducting a traffic engineering and design study along collectors, arterials and other major roads to identify necessary and feasible improvements such as acceleration/deceleration lanes, turn lanes at major intersections, ROW property acquisition and the effective use of medians." (pg. 8-20); and "8. Streets facility standards should be replaced with the standards that give them the longest life and quality available at this time. This should help reduce the backlog of maintenance." (pg. 8-20).

Background:

On April 7, 2015 the City Council approved a Professional Services Agreement with AVI PC to complete the Bill Nye Avenue Corridor Study, with the purpose of analyzing the existing Bill Nye Avenue Corridor between south 9th Street and south 3rd Street. AVI PC and the City agreed to expand the geographical scope (at no additional cost) to include an alignment along 15th Street as another option. The adopted 2010 Major Street Plan, and its predecessors, call for an alignment that crosses Spring Creek on a new bridge at approximately 5th Street. The purpose for this study is to identify whether the existing alignment is acceptable, or if better alternatives exist.

This study is partly the result of recent City Council discussion regarding B.F.R. Development's compliance with the Delayed Improvement Agreement requiring construction of Bill Nye Avenue and other associated improvements as specified in the Agreement.

On February 9, 2016 AVI PC presented a draft of the final document to the City Council. The purpose of this presentation is to provide a summary of the final draft. It is anticipated that the final study will be available for adoption by resolution at the May 19, 2016 City Council meeting.

Legal/Statutory Authority:

n/a

BUDGET/FISCAL INFORMATION:

REVENUE

Source	Amount	Type
Fees/Charges for Service		
Grants for Projects	$50,000.00	WYDOT Cooperative Agreement: 04-07-2015
Loans on Project		
Other		
Total	$50,000.00	

EXPENSE

Project Cost.

Project Budget	Amount	Funds
Project Cost	$62,500.00	300-3315-410 73-20 Streets & Bridges
Loans on Project		
Grants for Project	$50,000.00	WYDOT Cooperative Agreement: 04-07-2015
Other/Outside Projects		
City's Amount	$12,500.00	
Contingency 0%	$0.00	
Total Amount	$62,500.00	

Amount spent to date (approved and adopted by Council)

Budget	Amount	Funds
Total Budget Allocation	$62,500.00	
Less Amount Spent to Date	$27,973.10	
Remainder of Budget	$34,526.90	

Responsible Staff:

Future dates are subject to change

Work Session	February 9, 2016, April 26, 2016
Advertised	
Public Hearing Held	
Pub. Hearing Advertised	
Introduction/1st Reading	May 19, 2016 (Resolution)
2nd Reading	
3rd Reading	

Attachments:

Bill Nye Avenue Corridor Study

Bill Nye Avenue Corridor Study

DRAFT

April 2016

Submitted By:

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ACKNOWLEDGEMENTS

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Highway Safety Program

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Numerous agencies, local associations and individuals devoted their time to the development of this document, including but not limited to:

City of Laramie

City of Laramie City Council

City of Laramie Community Development Department

City of Laramie Public Works

U.S. Department of Transportation

Federal Highway Administration

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1.0 INTRODUCTION

Bill Nye Avenue has recently gained significant momentum, as construction is underway between Vista Drive and Boulder Drive, in anticipation of the opening of the new Laramie High School. Public and private developers have incited each other with property development, and vertical construction. Consequently, corresponding sections of the Bill Nye Avenue corridor have now begun to be constructed.

The corridor is envisioned to be a major east-west Minor Arterial connecting the City's southern gateway with its eastern gateway (i.e. 3rd Street and Grand Avenue) in the 2007 Laramie Comprehensive Plan (Kendig West Collaborative, 2007). Planning efforts for this corridor area to date have yielded basic alignment concepts in the area between 3rd Street and Corthell Road. See **Figure 1.1 Major Street Plan Excerpt (Laramie Comprehensive Plan Map 8.1)**. A network corridor plan will allow adjacent property development to occur and corresponding infrastructure be built to accommodate both the short term needs of potential route users and long term needs of the community. A defined alternative needs to be created for the corridor to allow the roadway to be built in stages and development to move forward.

Figure 1.1 Major Street Plan Excerpt (Laramie Comprehensive Plan Map 8.1)

The boundaries of the Bill Nye Corridor Study are Russell Street to Interstate 80 (north to south) and 3rd Street and 15th Street (West and East) which is illustrated in more detail in **Figure 1.2 Project Area and Vicinity Map.** The primary purpose of the project is to create a comprehensive and practical planning document that guides and promotes future development of the corridor and surrounding area. After several discussions with the key members of the City, Wyoming Department of Transportation (WYDOT) and the U.S. Department of Transportation Federal Highway Administration (FHWA) staff, the goal of the project was to create a realistic alternative alignment and 35% design plan that resulted in a multi-model corridor which:

- Is sensitive to the needs of the property owners,
- Promotes safety,
- Minimizes long term maintenance,
- Serves all transportation users,
- Facilitates inner City connectivity,
- Encourages economic development.

The project was reviewed with oversight by a steering committee comprised of the following agencies or representative organizations:

- City of Laramie Community Development Division,
- City of Laramie Planning Division,
- City of Laramie Public Works Division,
- City of Laramie Engineering Division ,
- WYDOT District No. 1,
- WYDOT Planning Division,
- FHWA.

The Steering Committee assisted in the development of the study from inception to completion. Their principal role was to provide advice, input, guidance, and recommendations.

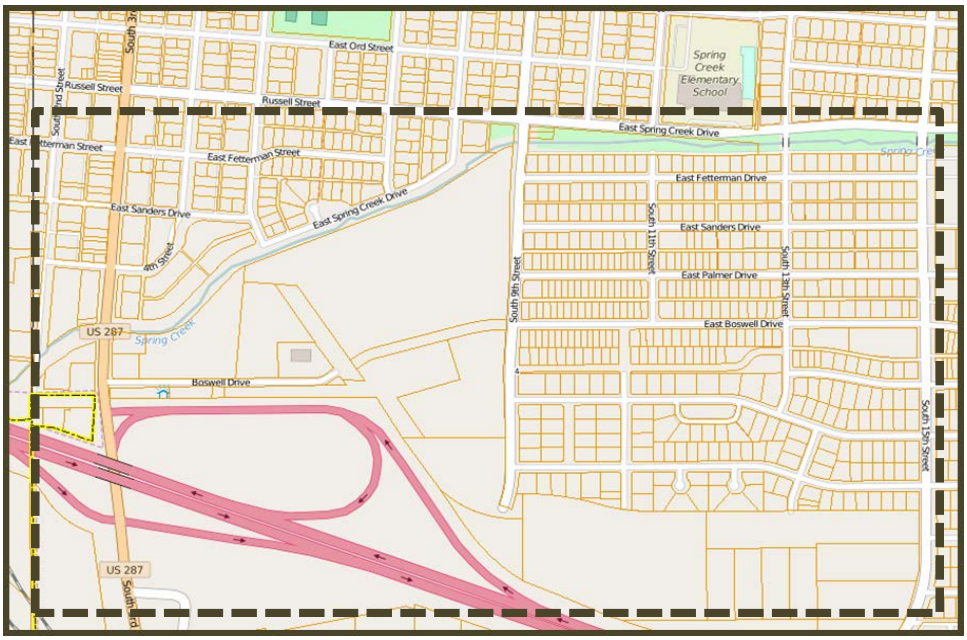


Figure 1.2 Project Area and Vicinity Map

2.0 GLIMPSE

The Glimpse section of the plan provides a summary of existing roadway and planning area.

Historical Review

The Bill Nye Corridor plan area is not a part of any historic districts. Additionally, the Wyoming State Historic Preservation Office (SHPO) website was reviewed for all the National Register listings in the area of the study and none were found.

Please note that if federal funds are used on any future projects or if a federal agency is part of the planning and implementation, a Section 106 Study will be required to determine potential impacts to any historic properties. Properties in the area of any construction impacts will be identified and evaluated based on the Secretary of Interior's Standards and Guidelines for identification. Several determinations can be made in the evaluation including the following:

- No historic properties affected,
- Historic property adversely affected,
- Historic property not adversely affected.

Existing Corridor and Boundary Conditions

Today the Bill Nye Avenue corridor is absent along this alignment except for some platted ROW on the east end where it connects to 15th Street. In this area, the roadway is gravel and provides access to industrial development. This is illustrated in **Figure 2.1 Bill Nye Avenue West of 15th Street Looking West** & **Figure 2.2 Bill Nye Corridor Area at 15th Street Looking West.** The next section of the corridor between the industrial area and 9th Street is comprised of native vegetation and sporadic overhead and underground utilities and is shown in **Figure 2.3 Bill Nye Avenue at 9th Street Looking East.**

The corridor area from 9th Street to Boswell Drive also consists of native vegetation and is constrained by newly

Figure 2.1 Bill Nye Avenue West of 15th Street Looking West

Figure 2.2 Bill Nye Corridor Area at 15th Street Looking West

Figure 2.3 Bill Nye Avenue at 9th Street Looking East

constructed storage units to the east and the Interstate 80 right-of-way to the west and south. Additionally, 9th Street at the location is constructed with a 48 foot wide curb and gutter street with asphalt surfacing. Sidewalks are only constructed adjacent to existing development north of the area see **Figure 2.3 Bill Nye Avenue at 9th Street Looking & Figure 2.5 Bill Nye Avenue at 9th Street Looking West**.

Boundary conditions on east and north portion of the corridor area vary from undeveloped, revitalized, and declining commercial to the east on South 3rd Street to single-family residential neighborhoods to the north on Sanders Street, South 5th Street, and East Spring Drive. **Figure 2.4 South 3rd Street at Palmer Drive Looking North** and **Figure 2.6 South 5th Street at Spring Creek Drive.**

Utilities

Based on observed surface locates and following utilities have been identified:

- Rocky Mountain Power Electric, Underground Gas;
- Black Hills Energy: Natural Gas;
- Charter Communications: Overhead Cable/ Phone;
- Century Link: Underground Phone;
- City of Laramie: Underground Water and Sewer.

Further development in the corridor will require wet and dry utility infrastructure to be expanded to support future development. Water and sewer utilities are available at South 15th Street, South 9th Street, Boswell, and South 3rd Street.

Drainage

Portion of the Bill Nye Avenue Corridor study area are within the Federal Emergency Management Agency **((FEMA) regulated Spring Creek floodplain as shown on Flood Insurance Rate Map (FIRM), Panel 1765 of 2500, Map Number 56001C1765E, Effective June 16, 2011. https://msc.fema.gov/portal.)**

Figure 2.4 South 3rd Street at Palmer Drive Looking North

Figure 2.5 Bill Nye Avenue at 9th Street Looking West

Figure 2.6 South 5th Street at Spring Creek Drive

Areas near Spring Creek appear to be within Zone AE while a majority of the corridor area is within the Unshaded Zone X. Zone AE is Special Flood Hazard Area (i.e. SFHA) subject to inundation by the 1% annual chance flood while Unshaded Zone X are classified to be outside the 0.2% annual chance floodplain. Future projects depicting the development of the roadway will require a Floodplain Development Permit through the Albany County Planning Department and City of Laramie. Detailed hydraulic and hydrologic modeling efforts along with sound engineering judgment will be critical to overall success of the future final plan development. A FEMA FIRM excerpt showing the area of the study is shown in **Figure 2.7 FEMA Panel 1765 of 2500, Map Number 56001C1765E**.

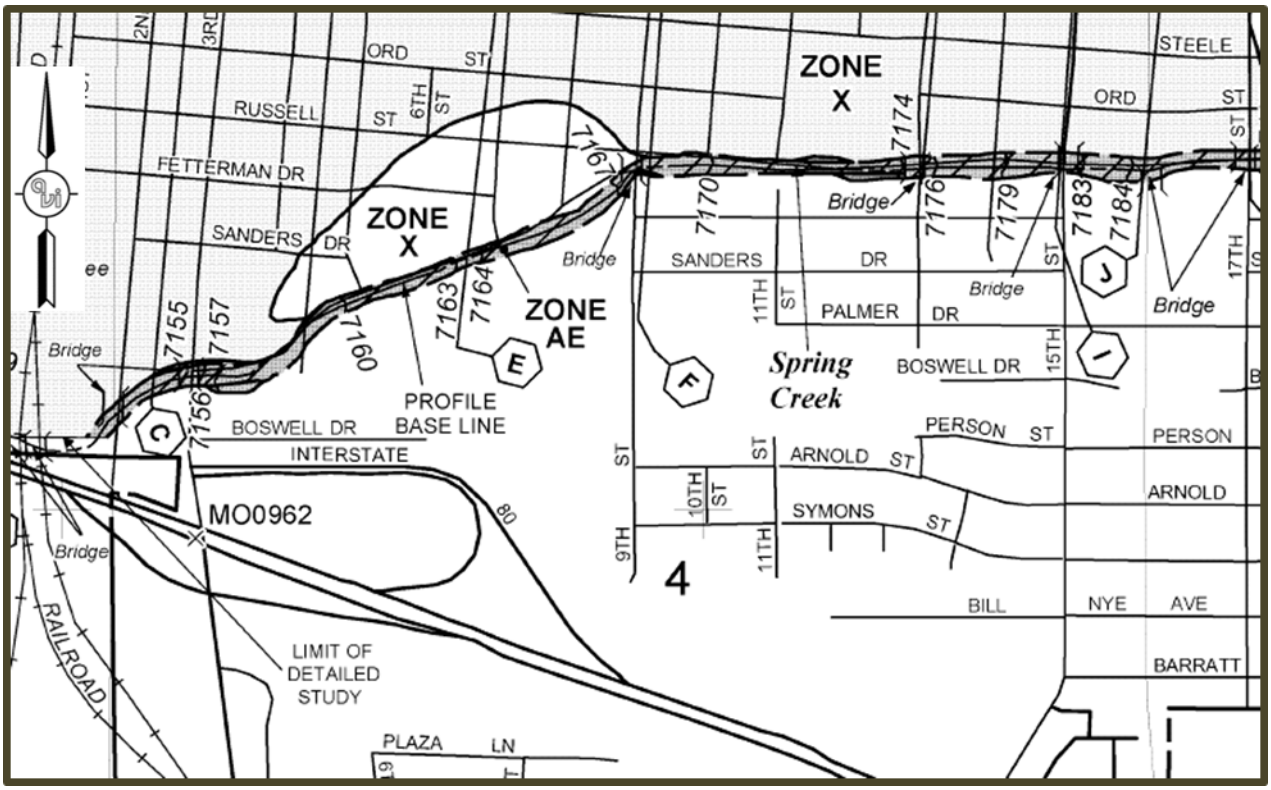


Figure 2.7 FEMA Panel 1765 of 2500, Map Number 56001C1765E

Bicycle Transportation

Currently there are no bike lanes, multiuse paths, or formal trails within the corridor boundary. However, 15th Street on the east side of the project has a formal on-street bike lane on each side of the roadway. It should be noted that 9th Street is shown as a designated route with signage and Bill Nye Avenue and Spring Creek have been designated as a paved surface separate from roadway on the City of Laramie Bicycle and Trails Master Plan from the 2007 Laramie Comprehensive Plan **(Kendig West Collaborative, 2007**). See the excerpt from the plan in **Figure 2.8 Existing and Proposed; Bike and Trail Network**.

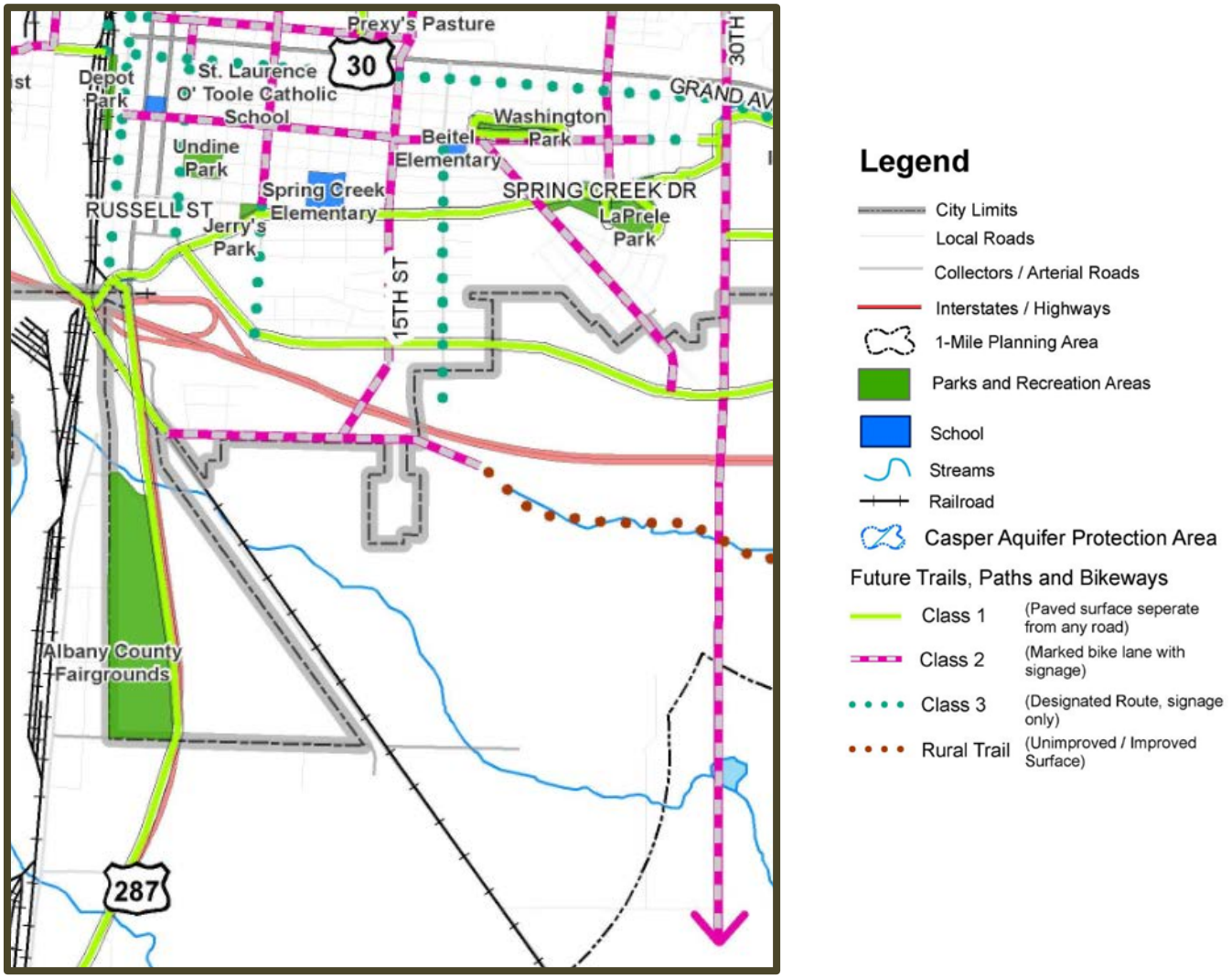


Figure 2.8 Existing and Proposed; Bike and Trail Network

Transit

The University of Wyoming at the southeast corner of 15th Street and Spring Creek Drive provides the closest Transit facilities area. The facility provides students, faculty, and staff busing to the university from the area south of Russell Street/Spring Creek Drive.

Environmental

Potential environmental considerations were reviewed for possible impacts to future improvement within the corridor. A field investigation by the AVI Team revealed the probability of wetlands located in the study area west of 9th Street and the I-80 Westbound On/ Off Ramps that may need to be mitigated when improvements are constructed.

Potential environmental considerations were reviewed for possible impacts to future improvement within the corridor. A cursory review and consultation with staff of the Wyoming Department of Environmental Quality (DEQ) and available documentation did not reveal any potential areas of concern within the study area. Refer to **Profile Chapter** for additional information.

Current Traffic Conditions

Sustainable Traffic Solutions, Inc. (STS) collected peak hour turning movement count data on Tuesday May 12, 2015 at Sanders Street, Boswell Drive, and the I-80 Ramps. WYDOT provided peak hour count data for Russel Street that was collected on Thursday September 27, 2012. The existing volumes are summarized in **Figure 2.10 Bill Nye Corridor Study Existing Traffic Volumes** and the counts are contained in Appendix E.

Traffic Safety

Crash data were provided by WYDOT for each of the key intersections along the corridor for the time period beginning on January 1, 2010 and ending on August 31, 2015. The number of crashes ranged from a total of seven at Russell Street to two at Sanders Street (see Table 2). Crash rates range from 0.10 crashes per million entering vehicles at the Sanders Street intersection to 0.28 at the Russell Street intersection. Given the low number of crashes and crash rates, STS concludes that there are no crash problems on the corridor. The crash data are contained in Appendix E and summarized in **Table 1 (4) Four Year Crash Summary for Key Intersections**.

Existing Land Use and Zoning

The corridor study area has a variety of adjacent property uses, form, function, and look. Land use varies but it is mainly comprised of a combination of urban residential, urban commercial and urban Industrial. The current Zoning Map is illustrated in **Figure 2.9 2013 Zoning Map.**

The following zoning uses are currently within the corridor area:

City Zoning:	Description:
▪ R1	Low-Density Residential
▪ R2	Medium Density Residential
▪ R3	Multi-family
▪ B1	Limited Business
▪ B2	General Business

Table 2.1 (4) Four Year Crash Summary for Key Intersections

Type	3rd Street			
	Russell Street	Sanders Street	Boswell Drive	I-80 Ramps
	Number of Crashes			
Approach Turn	1			
Angle			1	2
Sideswipe		2	1	1
Rear End	5		1	3
Pedestrian				
Head-on				
Vehicle vs Bicycle	1			
Total	**7**	**2**	**3**	**6**
Rate	**0.28**	**0.10**	**0.14**	**0.23**
PDO	**6**	**1**	**2**	**6**
Injury	**1**	**1**	**1**	**0**

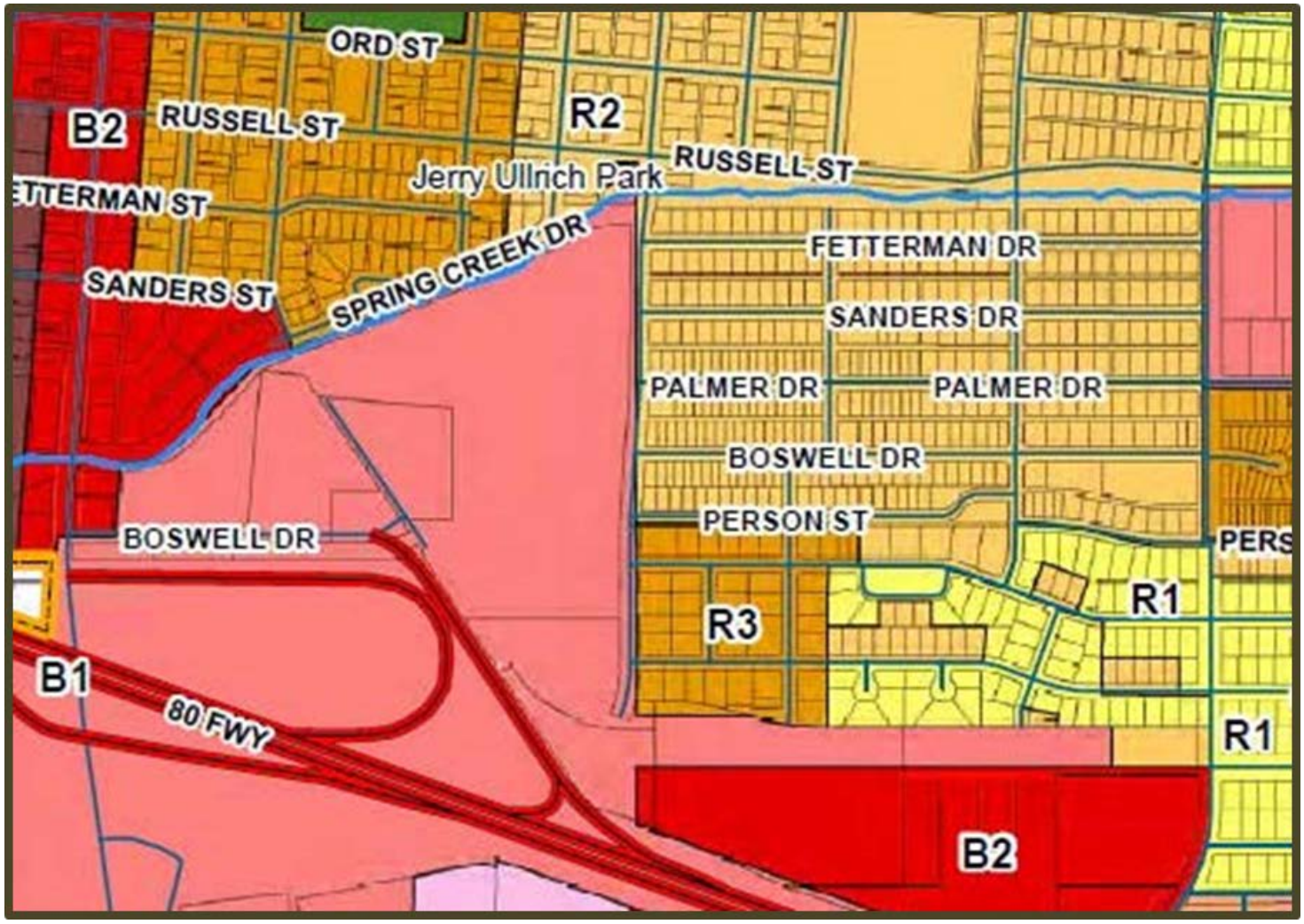


Figure 2.9 2013 Zoning Map

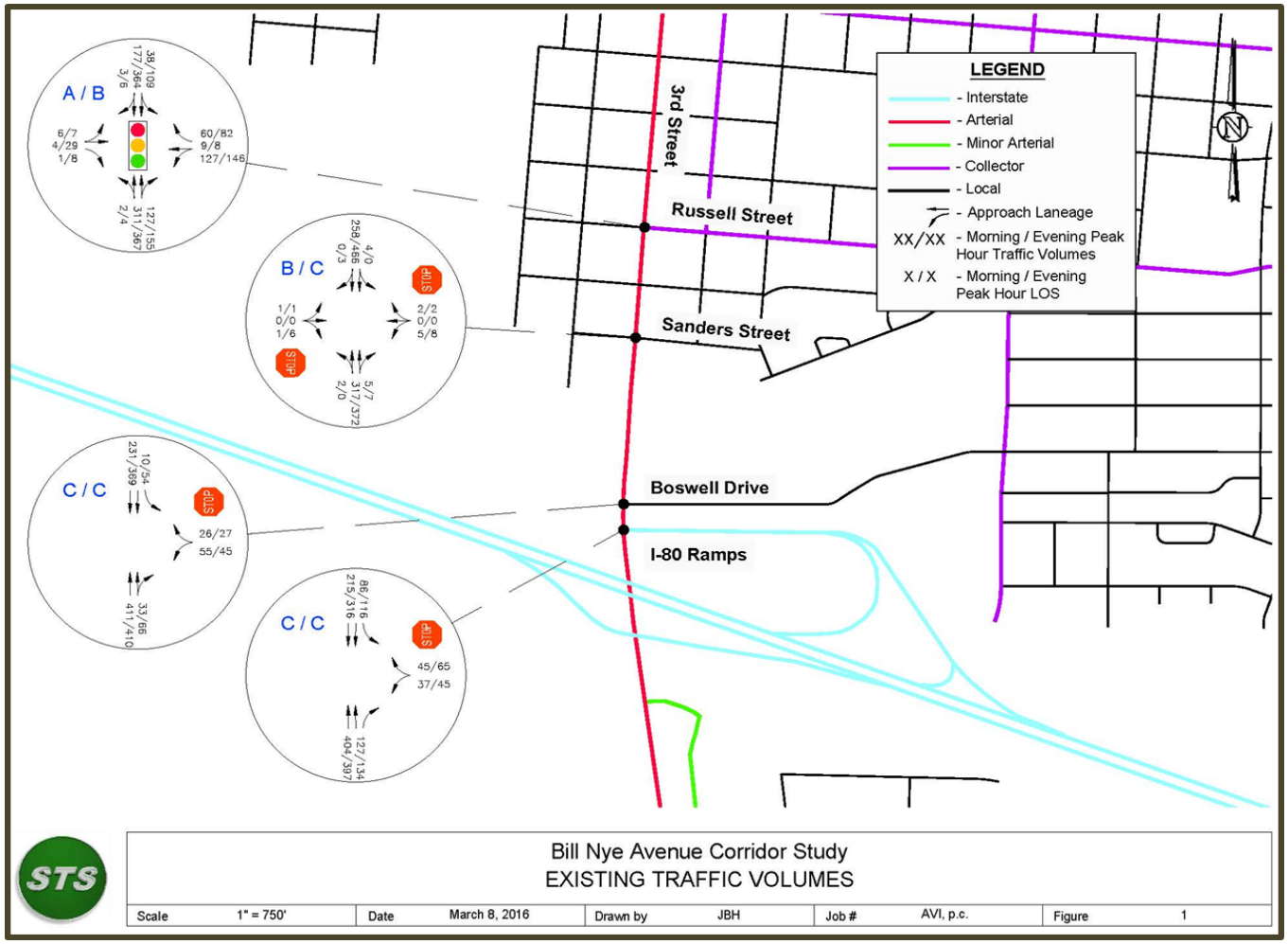


Figure 2.10 Bill Nye Corridor Study Existing Traffic Volumes

3.0 FOUNDATION

The foundation is the process and planning context phase of the project. It provided an avenue for a collaborative effort to define the opportunities and constraints of the corridor, as well as frame the key planning considerations, which shaped the plan.

The Bill Nye Avenue Corridor Study relied heavily upon extensive public and stakeholder participation. The process involved stakeholder one-on-one meetings, open house format meeting with residents, business owners, developers, landowners, project steering committee meetings, and City of Laramie Council workshop. **Table 3.1 Public Outreach Matrix** shows all the avenues used and dates in the foundation process of the project.

Table 3.1 Public Outreach Matrix

Activity	Date(s)
Stakeholder One-one-one Meeting(s) (City of Laramie and AVI)	July 1, 2015 September 16, 2015
Meeting w/ Federal Highway Administration (FHWA Office)	July 9, 2016
Public Open House (1) (Albany County Library)	October 21, 2015 5:00 p.m. to 7:00 p.m.
Steering Committee (5)	August 25, 2015; September 22, 2015; October 19, 2015; January 21, 2016; February 16, 2016.
Laramie City Council Work Session	February 9, 2016

One-on-one Meetings

The first type of foundation component involved stakeholder one-on-one individual meetings with several adjacent property owners and interested parties. The purpose of the meetings was to solicit input. Eleven (11) individual meetings were schedule and only nine (9) attended the meetings. Meetings were conducted July 1, 2015 and September 16, 2015 to accommodate stakeholder schedules.

The following are a list of the stakeholders who were scheduled to provide input:

- Dale Polenda, Adjacent Property Owner
- Jim McGrath, Area Resident
- Ponciano Villasenor, Corona Village (Scheduled but, did not attend)
- Janine Jordan, City Manager (Scheduled but, did not attend)
- Randy Hunt, City of Laramie, Community Development Director

- Ron Stephen, Fall Creek Development
- Greg Weisz, BFR Representative
- Earl Smith, City of Laramie, Publics Work Director
- Charles Bloom, Planning Division
- Jim Stephen, Fall Creek Development.

The agenda of the meetings were as follows:

- Introduction
- Goals of the Project
- Do you have any suggested alternatives?
- Do you have any concerns?

Summary of One-one-one Stakeholder Meetings

- They appreciated the team coming to them in a small setting and listening to their input.
- Agree with the Primary goals identified for the neighborhood (i.e. Preserve neighborhood, safety, keep lower traffic speeds, and keep lower traffic volumes).
- Suggested Alternatives:
    - Dual roundabouts on Interstate 80 off/ on-ramps,
    - Place the westbound off ramp at 9th Street,
    - Bike bridge,
    - Connect Bill Nye to Palmer at South 3rd Street,
    - Traffic calming on South 3rd Street,
    - Beautification and gateway opportunity,
    - Roundabout at South 3rd Street,
    - Original concept of Bill Nye Avenue to Sanders Street,
    - Utilize 9th Street to Russell Street as the Bill Nye Avenue connection,
    - Utilize Boswell Drive as the connection to Bill Nye Avenue,
    - Move Boswell Drive north and connect to Bill Nye Avenue,
    - Reconfigure interchange

- Concerns:
    - Solution should not remove traffic from businesses,
    - Direct costs to property or business owners,
    - Preserve neighborhood to the north of the area,
    - Signage for Westbound on/ off ramps,
    - Environmental concerns (underground storage tanks),
    - Access control.

It was conveyed to the groups that no additional costs shall be imposed on the resident neighborhood besides the normal taxes (i.e. sales tax and property tax) paid by all county/ city residents. Full funding for the project has not been established. This is a preliminary plan to help secure funding and guide future development.

Steering Committee

The second foundation component of the project involved enlisting the use of the Steering Committee. The committee was comprised of the following staff and key stakeholders from the City, WYDOT and other agencies during the plan development:

- Carl Lund, City of Laramie,
- Charles Bloom, City of Laramie,
- Earl Smith, City of Laramie,
- Eric Jaap, City of Laramie,
- Mark Christenson, City of Laramie,
- Randy Hunt, City of Laramie,
- Keven McCoy, WYDOT
- Mark Wingate, WYDOT,
- Pat Persson, WYDOT
- Randy Greisbach, WYDOT
- Tom DeHoff, WYDOT,
- Jeff Purdy, FHWA
- Phil Pratt, FHWA
- Brad Emmons, AVI, P.C.
- Jake Wilson, AVI, P.C.
- Tom Cobb, AVI, P.C.
- Joe Henderson, STS, Inc.

The Steering Committee met five (5) times throughout the course of the project to guide the consultant team, review project information, provide insight, discuss public and stakeholder involvement, and collaborate to make decisions about the plan direction and recommendations. Meeting minutes, as well as, the agenda can be found in Appendix C.

Public Open House

The third structural component involved an open house style forum for stakeholder and public comment. A presentation and open house style public meeting was conducted during the project. AVI led the public involvement process with assistance and contributions from all the team members. The meetings were advertised through various media including newspaper, web, and mail post cards.

A brief presentation combined with an Open House was conducted on Wednesday, October 21, 2015 from 5:00 p.m. to 7:00 p.m., with the presentation beginning at 5:15 p.m. at the Albany County Library 310 S 8th Street. Twenty-five (25) people were listed on the Sign-In-Sheet as attending the meeting. The objectives of the open house were as follows:

- Conduct a Presentation to provide background, purpose, and goals of project.
- Convey what we heard from the neighborhood meetings / recommendations.

- The consultants presented different road options based on the direction of public comment and landowner meetings and provided visual diagrams of what could be done along the corridor.

The open house was organized into two (2) different phases. The first was as brief twenty (20) minute presentation to focus on providing background, purpose, and proposed improvements. The second was two identical workshop areas comprised of exhibits shown in the presentation and a detailed aerial overview of the plan. Breaking the public into smaller groups allowed more one on one conversations and interactions with people. This was an attempt to ensure that the public in attendance was allowed to speak freely and get to know the people working on the corridor plan. A separate place was provided for the public to write comments and to answer a written survey.

Planning and Engineering consultants from AVI, City of Laramie, and WYDOT were present to receive public comment. Information and input was collected using three different avenues; direct communication with a team member (i.e. consultant, City staff member, and WYDOT), having the public write comments on Post-it® notes and placing them on large planning area maps, and filling out a written survey. The primary purpose of the three (3) different communication avenues was to create the most comfortable environment for individuals to convey information to the team.

Overview

Results for the written survey information were entered into the computer system by the consultants after the open house and the public had the option of entering the survey electronically through the Survey Monkey® web link. The link was provided on the City of Laramie website. Forty-eight (48) individuals provided written comments, and comment cards. Refer to Appendix C for complete summary of comments, exhibits, sign in and comment cards.

Laramie City Council Work Session

The fourth foundation component of the project involved utilizing a presentation to the Laramie City Council during a scheduled work session and a joint public forum meeting. The primary purpose of the meeting was to convey the comments received from the public input and present the corridor alternatives for review, comment, and question.

Reference

The Foundation or public involvement phase of the project provided one of the components of the foundation for development of the Design portion of the plan. Please see the Glimpse section of the plan, which encompasses the culmination of the foundation components and rationale behind the particular recommendations set forth in the plan.

4.0 PROFILE

The Profile section contains a set of foundations which help frame the boundary of the plan. The four (4) foundations are listed below and detailed in the following chapter:

- Foundation 1: Future Land Use Plan
- Foundation 2: Key Planning Considerations
- Foundation 3: Potential Funding Mechanisms
- Foundation 4: Environmental Constraints

Foundation 1: Key-Planning Considerations

The Future Land Use Plan is a long-range growth-focused map that provides the basis to guide future development in the Laramie and Albany County urban area. The map focuses on areas where new development will likely occur in the future and some redevelopment areas. The Land Use for this area was not revised and was used as the basis for future traffic volumes. Please see **Figure 4.1 Future Land Use Map Detail Area** and **Figure 4.2 Future Land Use Map 3.2.**

Foundation 2: Key-Planning Considerations

The Glimpse, Foundation, and Profile phase of the project provide a framework for the future land development and corridor vision of the various stakeholders. The Bill Nye Avenue Corridor area has the potential to grow and develop as additional utility and roadway infrastructure become connected and are appropriately sized for future capacity needs. The following structure considerations shape the corridor:

- Transit and Non-motorized Transportation
- Provide a safe, accessible and continuous pedestrian connection along the entire corridor
- Provide street lighting at intersections and non-motorized crossings where appropriate
- Provide for expanding transit stops along the corridor
- Provide separated multi-use path as recommended by the 2007 Laramie Comprehensive Plan, Bicycle and Trails Master Plan (Kendig Keast Collaborative , 2007)
- Review options to expand the Greenway within future developments for connectivity to schools and existing greenway components.
- Minimize impacts to nearby residential properties and businesses.

Traffic Safety and Operation

- Build a roadway cross section that enhances travel efficiency and accommodates all modes of transportation.

- Provide peak hour intersection operations with a minimun Level of Service (LOS) C as minimum through horizon year 2040.
- Attempt to maintain commercial and residential access approaches.
- Where appropriate, provide for proper turning widths at intersection to accommodate a conventional single unit truck, bus, or semi-trailer combination with a wheelbase of forty (40) feet (i.e. 3 to 4 axle).

Roadway Connectivity

- Review options to promote development in undeveloped open space.
- Review existing roadways and provide additional or enhanced street connectivity.

Dry and Wet Utilities

- Consult with wet and dry utility companies to provide enhanced or improved facilities to facilitate redevelopment.
- Attempt to provide a dry utility corridor within the current road right-of-way.

Cooperation

- Multiple public agencies including Albany County and City of Laramie.

Foundation 3: Potential Funding Mechanisms

Keys to successful development and revitalizing in the corridor will be predicated on the following:

- A clear vision, taking into account the market and economic reality;
- A proactive strategy for reinvestment (public and private);
- Educated citizenry and implementers;
- Calculated strategy to attract investment and remove barriers;
- Quantifiable leveraged public investment;
- Fiscally and economically responsible phasing plan;
- Equalization of economic risk vs. reward;
- On-going project support (political).

The public sector (City of Laramie, Albany County, etc.) will play an important role in “readying the area for private investment” through infrastructure improvements, public planning and policy initiatives. From these initiatives and/or investments, private sector development and redevelopment can be leveraged.

Funding mechanisms for public infrastructure could include loans and grants (e.g., Wyoming Business Council’s Business Ready Community Program and Community Facilities Grant and Loan Program); Community Development Block Grant (CDBG) funds; 5th and 6th Penny Sales Tax projects revenue

bonds; and general obligation bonds. One of the “truths” in corridor development and revitalization is that private investment will typically follow public investment. The types of public infrastructure recommended in the Corridor Plan will not only encourage new development on vacant and/or underutilized parcels, but redevelopment of existing sites and buildings. This new private investment represents the “leveraged” return to the public sector from their initial investments.

Foundation 4: Environmental Constraints

The following environmental checklist Table 4.1 Environmental Review Corridor Checklist was reviewed for the corridor in order to identify any areas of environmental concern that may need to be addressed in future development of the corridor plan, roadway design, and construction. The final notes and environmental report are contained in Appendix F of the report for additional information and reference.

Legend

Streams
1-Mile Planning Area
Railroad
City Limits
Casper Aquifer Protection Area

Major Street Plan

Proposed Roads	Existing Roads
	Local
Interstate	Interstate
Parkway	Parkway
Principal Arterial	Principal Arterial
Minor Arterial	Minor Arterial
Collector	Collector
Bridge/Overpass/Underpass	

Future Land Use Categories

- Agriculture
- Countryside
- Estate
- Suburban Residential
- Auto-Urban Residential
- Auto Urban Multifamily
- Urban Residential
- Suburban Commercial
- Auto-Urban Commercial
- Urban Commercial
- Urban University
- Industrial
- Public/Institutional
- PK/OS

Figure 4.1 Future Land Use Map Detail Area

Table 4.1 Environmental Review Corridor Checklist

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Natural Environment				
Threatened or Endangered Species	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	✓Yes ☐ No ☐Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Further investigation will be required during final design but not anticipated to be a factor. Review of area and U.S. Fish & Wildlife website. Unofficial US fish and Wildlife Service online database suggests that three species have potential habit on site; Preble's meadow jumping mouse, Wyoming toad, and western prairie fringe orchid. While these species have some potential, it is unlikely they are present. However, specific species/habitat surveys may be required once an alignment is selected. We are still waiting on response from the FWS from our letter request.
Wildlife Corridors	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ☐Unknown ✓Not applicable	Further investigation will be required during final design but not anticipated to be a factor. Based on WGFD GIS data, no wildlife corridors cross or are in the area.
Invasive Species	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Further investigation will be required during final design but not anticipated to be a factor.
Wetland Areas	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Further investigation will be required during final design but not anticipated to be a factor. Please see Appendix F for additional information and reference. The previous letter report still holds true.

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Natural Environment (Continued)				
Riparian Areas	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ☐ No ☐ Unknown ✓ Not applicable	Observation
100-Year Floodplain	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	FEMA website and County GIS review. (see Glimpse: Drainage)
Clean Water Act Sections 404/401 Waters Of The United States	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ☐ No ☐ Unknown ✓ Not applicable	WDEQ identified no Class I waters, but further detailed design/layouts will be needed to determine what if any permits will be required from the Army Corps of Engineers and WDEQ-WQD.
Prime Or Unique Farmland	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ☐ No ☐ Unknown ✓ Not applicable	The Albany County Area Soil Survey confirmed no Prime or Unique Farmlands in the area.

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Natural Environment (Continued)				
Wild and Scenic Rivers	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	The National Wild and Scenic River System database confirmed no Wild and Scenic Rivers are on site or within visual range of the Bill Nye Corridor Study.
Visual Resources	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Observation and public process. Visual leisure in the case is “open space/aerial”. Although this is subjective it may have impacts throughout the corridor.
Designated Scenic Road/Byway	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	Observation
Cultural Resources				
Archaeological Resources	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Formal survey were not completed; however, the Disturbed nature of the area would suggest that it is unlikely to find surface deposits. Buried artifacts may be possible. Formal surveys are likely once an alternative is selected. We are still waiting on a response from SPHO from our letter request.

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Cultural Resources (Continued)				
Historical Resources	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Observation
Section 4(f) and Section 6(f) Resources				
Section 4(f)[1] Wildlife and / or Waterfowl Refuge	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	No impacts are anticipated based on observation.
Section 4(f) Historic Site	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	A section 106 Study will be required to determine potential impacts however, the area was not listed on the SHPO website.
Wild and Scenic Rivers	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	Observation

[1] Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S. Code § 303, as amended); see <Section 4(f)>.

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Section 4(F) And Section 6(F) Resources (Continued)				
Section 4(f) Park	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Observation
Section 6(f)[2] Resource	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	
Human Environment				
Existing Development	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Existing approaches, fences and right-of-way will be necessary to complete the project based on the preliminary plan.
Planned Development	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Potential development is anticipated on underdeveloped properties based on discussions with adjacent boundaries.

[2] Section 6(f) of the Land and Water Conservation Fund Act

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Human Environment (Continued)				
Displacements	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Possible impacts to adjacent business adjacent to the existing Boswell Drive.
Access Restriction	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Observation
Neighborhood Continuity	☐ Yes ✓ No ☐ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Observation
Community Cohesion	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Public Involvement process.

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Physical Environment				
Title VI/Environmental Justice Populations[3]	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	
Utilities	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Observation See Section Glimpse; Utilities.
Hazardous Materials	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	Observation
Sensitive Noise Receivers[4]	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	✓ Yes ☐ No ☐ Unknown ☐ Not applicable	Spring Creek Elementary School Adjacent Neighborhoods

[3] refers to Title VI of the 1964 Civil Rights Act and 1994 Executive Order 12898 on environmental justice

[4] under FHWA's Noise Abatement Criterion B: picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals

Resource or issue	Is the resource or issue present in the area?	Are impacts to the resource or issue involvement possible?	Are the impacts mitigable?	Discuss the level of review and method of review for this resource or issue and provide the name and location of any study or other information cited in the planning document where it is described in detail. Describe how the planning data may need to be supplemented during NEPA.
Physical Environment (Continued)				
Air Quality	☐ Yes ☐ No ☐ Unknown ✓ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	
Energy	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	☐ Yes ☐ No ✓ Unknown ☐ Not applicable	

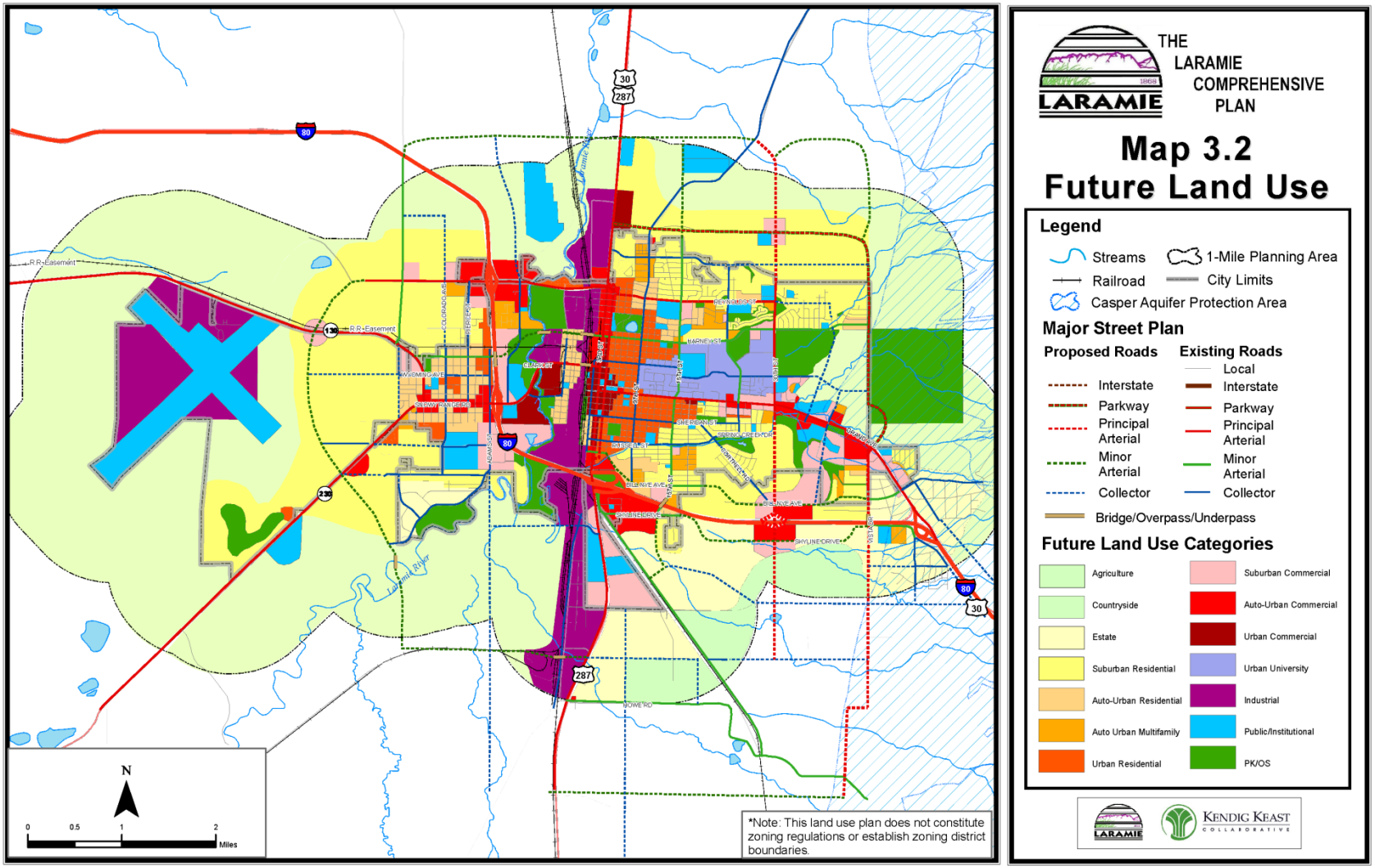


Figure 4.2 Future Land Use Map 3.2

5.0 DESIGN

The Glimpse, Foundation, and Profile phase of the project provided a solid basis for development of the Design portion of the plan. The design section of the plan encompasses the culmination of the groundwork components and rationale behind the particular recommendations set forth in the plan.

The overall recommendations are specifically designed to address the modes of transportation and safety needs of the present and future users of the Bill Nye Avenue Corridor. All recommendations have been examined carefully to ensure the wishes of the stakeholders have been considered as well as their practicality, functionality, aesthetic appeal, sustainability, and successful implementation. The physical layout of the improvements are detailed in the following pages and can be found on the corridor plan and profile sheet in Appendix A. Detailed cost estimates are shown in Appendix D.

Roadway Concept Alternatives

The methodology employed to develop the conceptual roadway "typical" alternatives were evaluated using a multi-modal framework as a base. At intersections and other locations with unique design challenges (e.g. driveways, areas with limited sightline, etc.), special designs and modifications may be needed to address issues of road geometry, adjacent land uses, traffic volumes and other characteristics. The Bill Nye Avenue Corridor Study evaluated conceptual improvement alternatives for the roadway segments and streetscape with the following governing parameters:

- What are the existing and future adjacent conditions and uses?
- What variations can be made to create a more user-friendly corridor?
- What movements and interactions will take place on the corridor?
- What is the corridor vision of the stakeholders?
- What can we do to add low maintenance streetscape to "soften" the corridor for non-motorized modes of transportation?
- Required minimum City of Laramie Unified Development Code (UDC) typical section for roadway classification (Laramie, 2010 Version 7.0 - Print Date: January 23, 2015)

Design Guide Criteria

- Roadway Classification: Minor Arterial
- Minimum Design Speed: 35 mph
- Lane Width: 11 foot
- Clear Zone Width: 16 feet (ADT > 6,000), 1V:5H to 1V:4H
  14 feet (ADT > 6,000), 1V:6H
  AASHTO Roadside Design Guide (Officials A. A., Roadside Design Guide, 2011))
- Stopping Sight Distance: 250 feet
- Passing Sight Distance: 550 feet
- Crest Vertical Curve: K = 108 (Passing Sight Distance)
  K = 49 (Stopping Sight Distance)
- Sag Vertical Curve: K = 49 (Stopping Sight Distance)
- Grade (Max./ Min.): 6%/ 0.5%
- Design Vehicle: WB-40 9(Bill Nye), WB-67 (South 3rd Street)
- Horizontal Curve: R = 510' (Adverse Crown),
- Transitions: L = WS2/60 = W(35) 2/60

Table 5.1 Ultimate Typical Section Jurisdictional Comparison

Description	City of Laramie (Minor Arterial) (1)	City of Cheyenne (Minor Arterial) (2)	2011 AASHTO (3)
Travel Lane**	4 – 12'	2 – 12'	10' – 12'
Turn Lanes	12' (3)	12'	-
Parking **	none	none	11'
Roadway Width	68'	48'	Volume
Sidewalk/ Pedestrian Area	5'	6'	-
Parkway/ Tree Lawn	8'	8'	-
Bike Lane/ Shoulder**	Permitted	2 – 6'	4' – 8'
Volume Capacity (ADT)	5,000 – 30,000	7,500 – 18,000	Over 2,000

[1]**Footnotes:**

[1] ** # - ##' indicates total number of element within corridor cross section
(1) *City of Laramie Standard Details* (City of Laramie, Issued March 2013), *Unified Development Code Laramie, Wyoming* (Laramie, 2010 Version 7.0 - Print Date: January 23, 2015), Laramie Comprehensive Plan (City of Laramie, 2007)
(2) *City of Cheyenne Unified Development Code* (Cheyenne, 2013)
(3) *A Policy on Geometric Design of Highways and Streets* (Officials, A Policy on Geometric Design of Highways and Streets, 2011)

Cross Sectional Elements

Lane Widths

As shown in **Table 5.1 Ultimate Typical Section Jurisdictional Comparison**, lane width requirements vary between the jurisdictional entities from ten to twelve (10-to-12) feet. According to AASHTO (Officials A. A., A Policy on Geometric Design of Highways and Streets, 2011) and our experience, smaller lane widths may be used in more constrained areas where truck and bus volumes are relatively low and where speeds are less than 45 mph. Lane widths of eleven (11) feet wide are extensively used in urban arterial street designs while twelve (12) foot wide lanes are desirable on high speed, free flowing principal arterials.

After extensive discussion between the design team and Steering Committee, we recommend the use of eleven (11) foot wide travel lanes on Bill Nye Avenue. This width still accommodates larger design vehicles and increases the available tree lawn width, which can be used for snow storage, pedestrian separation, and drainage.

Curbs

The type and location of curbs affect driver behavior and safety. Curbs serve many purposes including drainage control, roadway edge delineation, delineation of pedestrian walkways, and access control. Although curbs are not considered fixed objects in the context of a clear zone obviously, they will have an effect on impacting or overriding car movements

After discussion within the public, design team and Steering Committee, we recommend the use of curb and gutter on Bill Nye Avenue. Curb and gutter will provide better access control and pedestrian delineation for use by pedestrians and young schoolchildren.

Bicycle and Pedestrian Facilities

Bicycling is becoming increasingly popular in Wyoming, especially in University towns such as Laramie, as a means of transportation and recreation. Furthermore, as a part of providing a more continuous, safe and efficient bicycle system, the Unified Development Code Laramie, Wyoming (UDC) (Laramie, 2010 Version 7.0 - Print Date: January 23, 2015)**,** Laramie Comprehensive Plan, Trails and Bicycle (Comprehensive Plan) (City of Laramie, 2007)**,** and City of Laramie Standard Details (Standard Details) (City of Laramie, Issued March 2013)have emphasized the accommodation of safe, efficient, and convenient movement of vehicles, bicycles, and pedestrians through development of land. Specifically, the following criteria have been identified for the corridor:

- Class 1: Paved surface separated from the roadway; Comprehensive Plan
- Typical Pathway: 11 to 12 feet wide, 6” deep; Standard Details

Separated multi-use pathways provide the broadest opportunity for a variety of non-motorized transportation modes. However, advanced commuter cyclists prefer riding within the roadway. After discussion within the public, design team and Steering Committee, we recommend the use of additional on-street shoulder/ bike lane on the Bill Nye corridor. The Urban Bikeway Design Guide by the National Association of City Transportation Officials (Officials N. A., 2014) recommends the following conventional bike lane standard.

Bike Lanes Without On-street Parking, a minimum width of four (4) feet when no curb and gutter is present, five (5) feet when adjacent to curb and gutter, and six (6) feet where right-of-way allows. We recommend the use of five (5) foot bike lanes be incorporated into the typical section on areas without parking to the front of the curb pan on Bill Nye Avenue.

Figure 5.1 Bike Lane Typical

Parking Lane

Providing parking varies where adequate off-street parking facilities are not available or practical. However, parking on arterial streets is highly undesirable. Stakeholders in the area indicated that providing a parking lane was not a concern on the corridor. Therefore, we recommend no parking within the Bill Nye Avenue Corridor.

Medians

The primary function of medians is safety. They separate traffic streams, guide turning movements at intersections, and provide access control to/from minor access drives and intersections. It is very important that medians be delineated in a way that makes them visible and distinguishes them from the adjacent driving lanes. Curbed medians and traffic islands provide an added benefit by “softening” the urban roadway edge and subjectively enhance the aesthetic quality when utilizing a combination of the material types.

Three (3) types of medians are most common in the urban roadway environment: raised, flush, and two-way left-turn lanes.

- **Raised Medians**

  A raised median is used in urban streets where it is desirable to control or restrict mid-block left turns and cross maneuvers. Installing a raised median can result in the following benefits:

  - Improve traffic safety
  - Restrict left-turn and crossing maneuvers to specific locations or certain movements
  - Increase capacity and reduce delays

- Provide a pedestrian refuge area (minimum of six (6) feet wide).
- AASHTO (Officials A. A., A Policy on Geometric Design of Highways and Streets, 2011) recommends that intersection median turn lanes have a minimum medial separator of four (4) feet between turning lane and opposing traffic. Additionally, they recommend that with wider medians, consideration should be given to offsetting the left-turn lanes to provide maximum visibility between opposing traffic volumes.

❖ **Flush Medians**

Flush medians are surface painted medians that can be traversed. (Although they discourage left-turn and crossing maneuvers by their striping configuration, they do not prevent left turns because the median can be easily crossed).

❖ **Two-way Left-turn Lanes**

Two-way left-turn lanes (TWLTL) are flush medians that may be used for left turns by traffic from opposing directions on the street. AASHTO (Officials A. A., A Policy on Geometric Design of Highways and Streets, 2011) recommends the use of a TWLTL on arterials with numerous cross streets, commercial, residential drives, or where it is impractical to limit left turn movements.

The Bill Nye Avenue Corridor plan recommends the use of all three types of medians however, the only cross sectional element shown on the typical section is a continuous two-way left-turn lane or no median.

Auxiliary Lanes (Speed-Change Lanes)

City of Laramie Criteria (Laramie, 2010 Version 7.0 - Print Date: January 23, 2015). No criteria were found within the code referenced above related to auxiliary lanes. Therefore, AASHTO was utilized for the development within the corridor.

Table 5.2 Jurisdictional Requirements for Auxiliary Lanes

Design Speed	Stop Condition Decel	15 MPH Turns Decel	Minimum Decel Lane Taper Ratio
AASHTO			
30	160	-	8:1 to 15:1
40	275	-	8:1 to 15:1
50	435	405	15:1

Careful consideration was given to the proposed conceptual alternatives to use the safest and most practical deceleration length on the corridor. Therefore, due to the proximity of access approaches, and expected relatively lower speeds approaching intersections, a one-hundred sixty (160) foot deceleration length was applied to the auxiliary lane development. If specific site conditions did not allow

development of full deceleration lane, it was omitted and so noted. Additionally, for the identical reasons as previously noted, a 100' minimum taper was utilized for all the auxiliary lanes with the corridor. For a twelve (12) foot lane, this equates to approximately an 8.33:1 and for an eleven (11) foot lane, it equates to approximately a 9.1:1.

Left Turn Lane

We recommend that a left-turn deceleration lane and taper are required for any access with a projected peak-hour ingress turning volume greater than 10 vehicles per hour (vph). The taper length shall be included with the required deceleration length.

Right Turn Lane

A right-turn deceleration lane and taper is required for any access with a projected peak hour ingress turning volume greater than 25. The taper length should be included within the deceleration length.

Provision for Dry Utilities

As previously described in the study, some utilities are interlaced in the corridor area and are both underground and overhead. Obviously, utilities should desirably be located underground or at the edge of the right-of-way, when practical.

Based on recommended right-of-way width of 100 feet, we would recommend that new developments have dry utility facilities relocate underground within the corridor.

The recommended Conceptual Typical Section for the Bill Nye Corridor is illustrated in **Figure 5.2 Recommended Typical Section (Looking West)** General Corridor Recommendations

- Pedestrian and sidewalk improvements
- Explore opportunities, as area develops to provide roadway storm water detention / retention features / facilities.
- Update/ install strategic street lighting at key intersections (Bill Nye Avenue: at South 9th Street, Boswell Drive, and South 15th Street).
- Implement wet and dry utility priority projects as funding resources become available or development becomes the catalyst
- Storm sewer installation

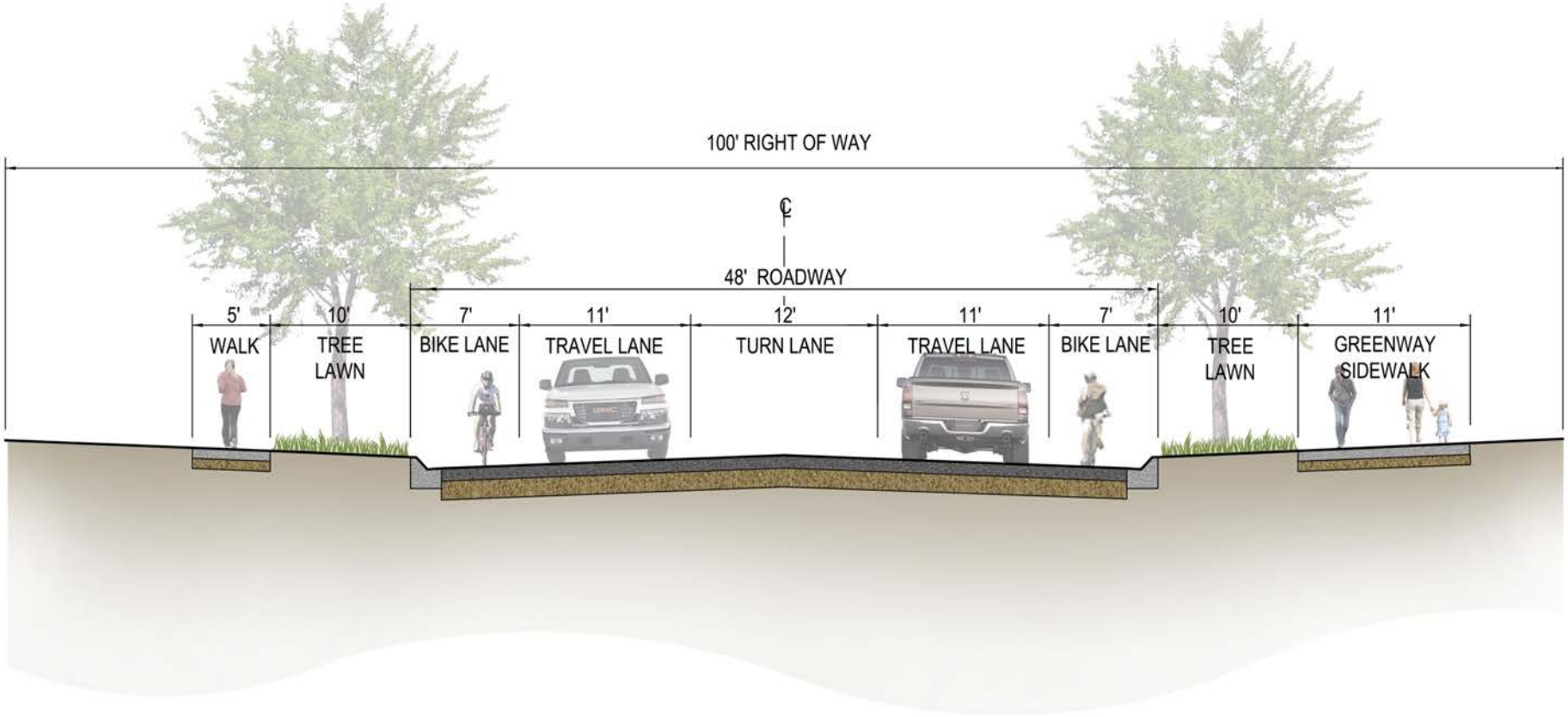


Figure 5.2 Recommended Typical Section (Looking West)

Figure 5.3 Future Land Use

Future Traffic Volume Conditions

Traffic volume projections were developed for Year 2035 by Sustainable Traffic Solutions, Inc. to estimate the impacts of the traffic growth on the corridor. Projected traffic volumes for the corridor were developed based on the land use plan show in **Figure 5.3 Future Land Use**.

Drainage and Detention

We understand the requirements for the City of Laramie regarding drainage planning and design is under further review and evaluation. Until such time that those final regulations and code are adopted, we recommend that at a minimum the proposed roadway corridor shall provide for the following:

- Stormwater detention based on a design storm up to a one-hundred (100) year frequency.
- Post development design requirements shall be for a system to maintain total contributory site discharge at no greater than a pre-development (i.e. historic) ten (10) year release rate for a 100-year storm event.
- Additionally, at a minimum drainage conveyance system elements shall be based on the following criteria for a collector street:
    - Major Storm (100-year)
        - Maximum depth in gutter flowline 6 inches, 6 inches flow across street intersections.
        - Maximum allowable Spread 18 feet each side allowing middle lane passage.

The design team developed conceptual potential drainage plan opportunities for the corridor. Due to the size of the right-of-way at 100 feet, planning level opportunities exist for improving the post development drainage adjacent to the corridor. We recommend innovative drainage solutions be implemented gutter “turnouts” that direct stormwater to tree lawns to capture runoff **(Figure 5.4 Gutter Turnouts)**; roadside drainage that capture and treat water via longitudinal gravel beds, and the use of roadside ditches as linear detention/water quality facilities.

Figure 5.4 Gutter Turnouts

Figure 5.5 Linear Detention/Bioswale

Alignment Alternatives

Many different concepts were suggested, reviewed, and evaluated for consideration for the Bill Nye Avenue alignment from South 15th Street to South 3rd Street during the study process. Those considered included the following:

- Do Nothing – Utilize 15th Street
- 9th Street Connection
- 5th Street Connection
- Original Concept Of Bill Nye Avenue Connects To Sanders Street
- Move Boswell North And Connect To Bill Nye Avenue
- Utilize Boswell Drive As The Connection Of Bill Nye
- Roundabout At Boswell Combined W/ WBL Off/On Ramp

- E. Palmer Drive W/ Cul-De-Sac At Boswell
- Roundabout At 3rd Street/ Boswell Drive/ I-80 Westbound Ramps
- Dual Roundabouts On 3rd Street For The I-80 Off/ On Ramps.

After careful consideration and vetting through the Steering Committee, the possible conceptual alternatives were narrowed to the following and discussed below.

- Do Nothing – Utilize 15th Street
- Revised Boswell Realignment (Move Boswell north and connect to Bill Nye Avenue)
- E. Palmer Drive w/ Cul-de-sac at Boswell
- Roundabout at 3rd Street/ Boswell Drive/ I-80 Westbound Ramps.

Alternative 1: Do Nothing Alternative – Utilize 15th Street. This alternative utilizes the existing 15th Street as the connection to 3rd Street for Bill Nye Avenue. Minor improvements would be necessary including widening and upgrading signals to accommodate future anticipated traffic volumes. **Figure 5.6 Alternative 1: Do Nothing-Utilize 15Th Street.**

Alternative 2: Revised Boswell Realignment (Move Boswell north and connect to Bill Nye Avenue). This alternative attempts to create separation between the I-80 Westbound On/ Off Ramps and the Boswell Drive/ Bill Nye roadway intersection. **Figure 5.7 Alternative 2: Realign Boswell**

Alternative 3: E. Palmer Drive w/ Cul-de-sac at Boswell. This alternative creates a revised connection of Bill Nye Avenue at East Palmer Drive. It is proposed with a cul-de-sac at Boswell Drive and 3rd Street. Access to businesses on Boswell would need to utilize Bill Nye Avenue to Boswell Drive. Obviously, wayfinding signage would need to be incorporated with this alternative on South 3rd both northbound and southbound. See **Figure 5.8 Alternative 3: E. Palmer Drive w/cul-de-sac on Boswell at 3rd Street.**

Alternative 4: Roundabout at 3rd Street/ Boswell Drive/ I-80 Westbound Ramps. This alternative is a roundabout at 3rd Street and Boswell Drive/ Bill Nye Avenue. The premise of the alternative is based on phased approach where the roundabout would be built for a two lane roundabout but, utilized as a single lane roundabout until a two lane is warranted. See **Figure 5.9 Alternative 4: Roundabout at 3rd Street/I-80 WB Ramps.**

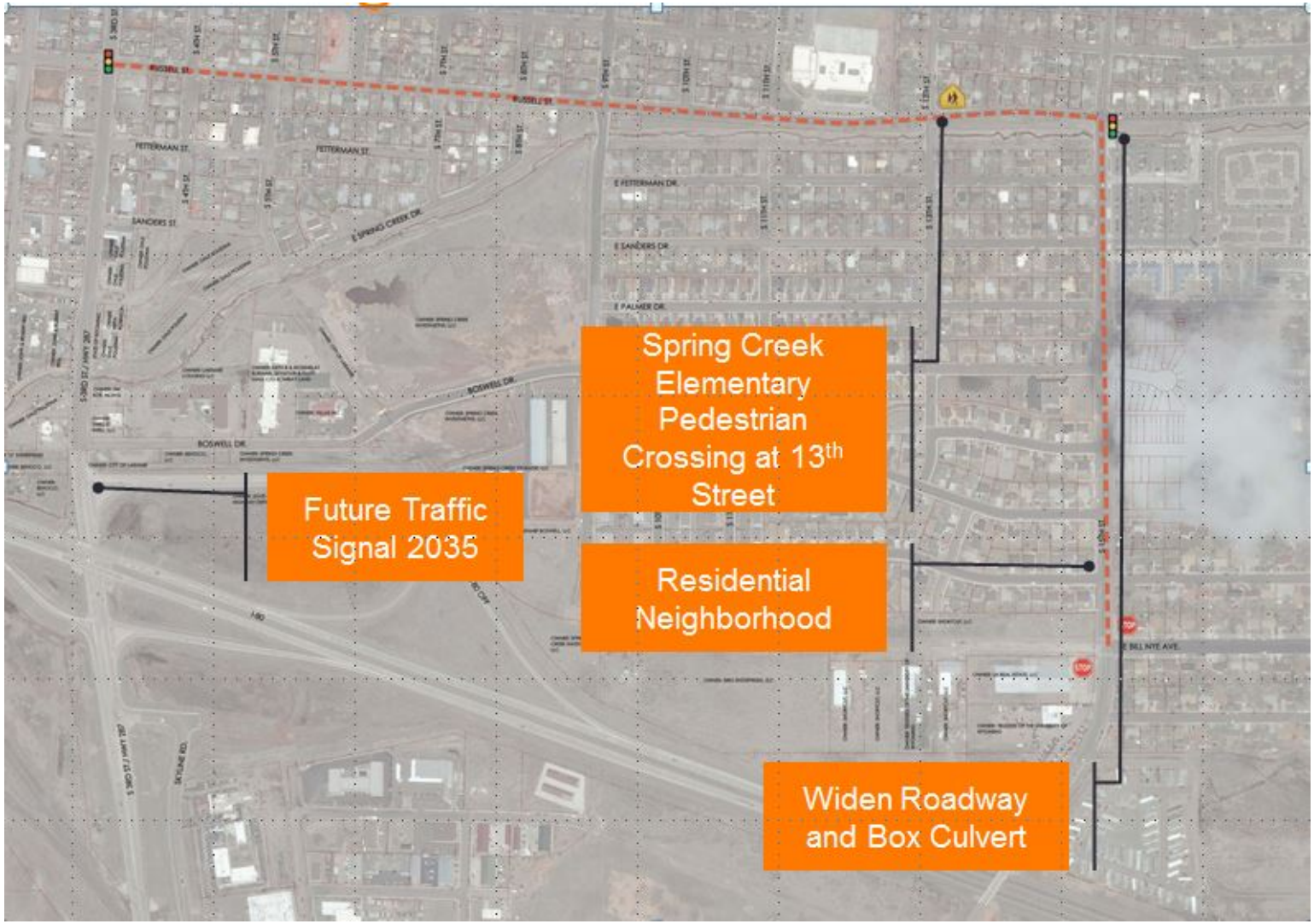


Figure 5.6 Alternative 1: Do Nothing-Utilize 15Th Street

Figure 5.7 Alternative 2: Realign Boswell

Figure 5.8 Alternative 3: E. Palmer Drive w/cul-de-sac on Boswell at 3rd Street

Figure 5.9 Alternative 4: Roundabout at 3rd Street/I-80 WB Ramps

Right-of-way Requirements

During this preliminary design phase of the project, the team researched the Albany County GIS website (Albany County GIS Web Map, 2016) and recorded documents in the Albany County Clerk's office in order to identify potential needs for future right-of-way. The purpose was two-fold; first, to identify the preliminary physical property needs and ownerships and second, to commence open communication with the present landowners.

The planning and design team have made recommendations for right-of-way acquisition that we believe were necessary to fulfill the goals of the project and minimize the impact to existing landowners. Please note that a Wyoming Professional Land Surveyor will be required to establish the existing right-of-way along the corridor and determine the acreages required for the project. The following table and figures summarize the parcels and ownerships which have been identified at the thirty-five (35) percent design level for proposed right-of-way acquisition. These are outlined in the following **Table 5.3 Summary of Right Requirements** and **Figure 5.12** thru **Figure 5.15**.

Table 5.3 Summary of Right Requirements

Right-of-Way Requirements	Alternative 2	Alternative 3	Alternative 4
Land to be dedicated Via Platting	8.16 Acres	8.91 Acres	7.94 Acres
Level 1 Commercial Land	0.47 Acres	NA	0.19 Acres
Level 2 Commercial Land	0.89 Acres	0.28 Acres	0.46 Acres
Vacant Land	1.47 Acres	0.17 Acres	1.59 Acres
Total	10.99 Acres	9.36 Acres	10.18 Acres

Right-of-Way Impacts for Alternates Two (2), Three (3), and Four (4)

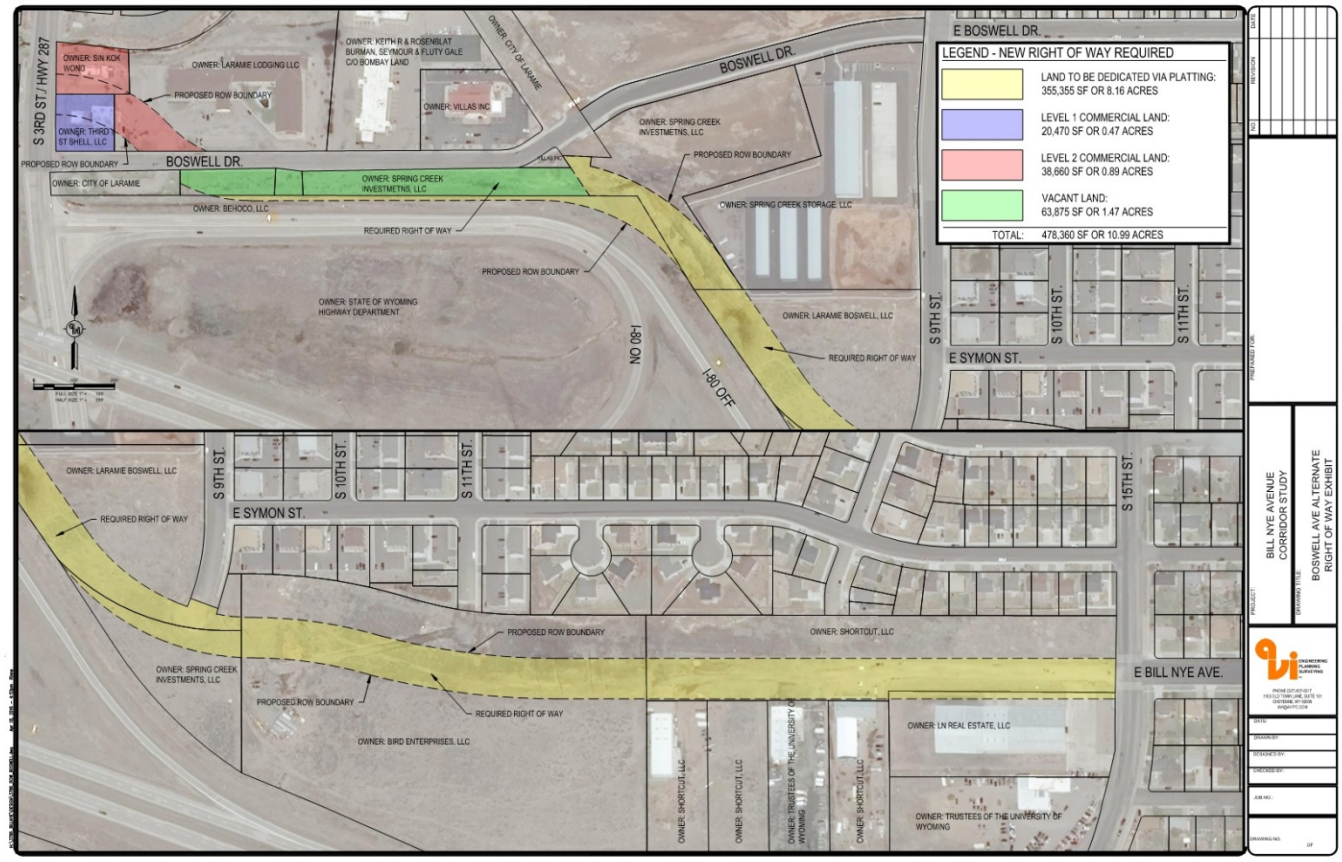


Figure 5.10 Right-of-way Requirements Alternative 2

Figure 5.11 Right-of-way Requirements Alternative 2 Detail

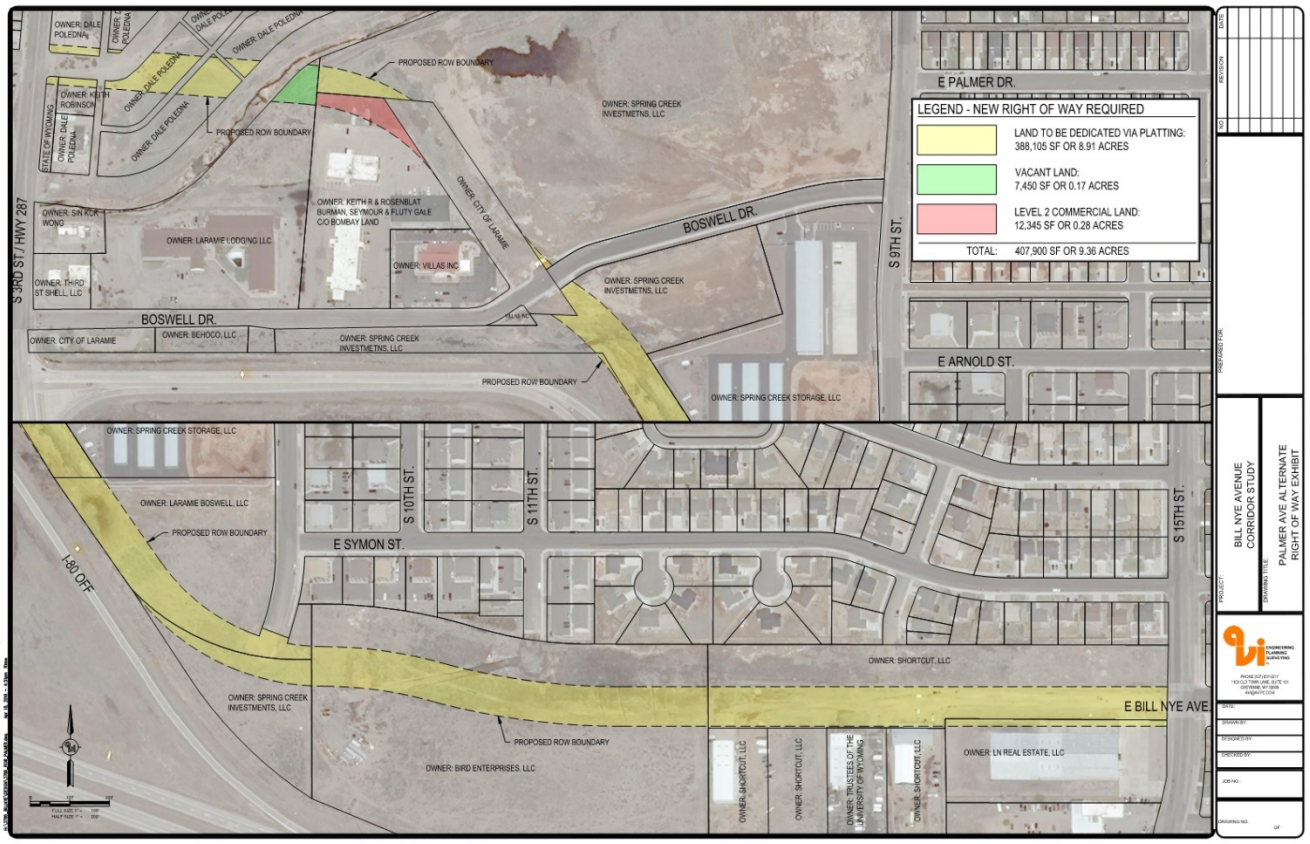


Figure 5.12 Right-of-way Requirements Alternative 3

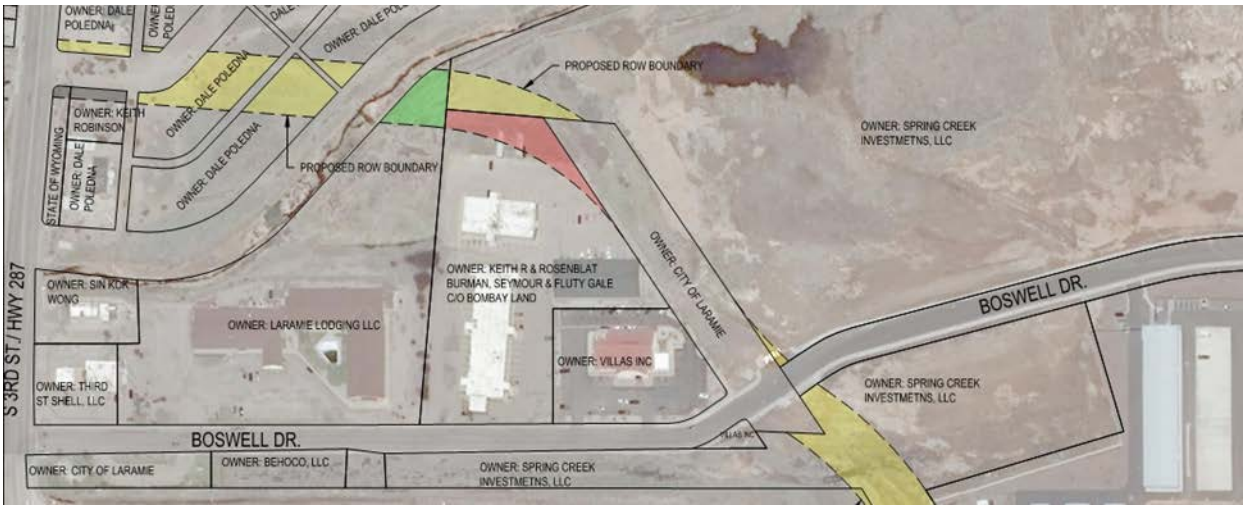


Figure 5.13 Right-of-way Requirement Alternative 3 Detail

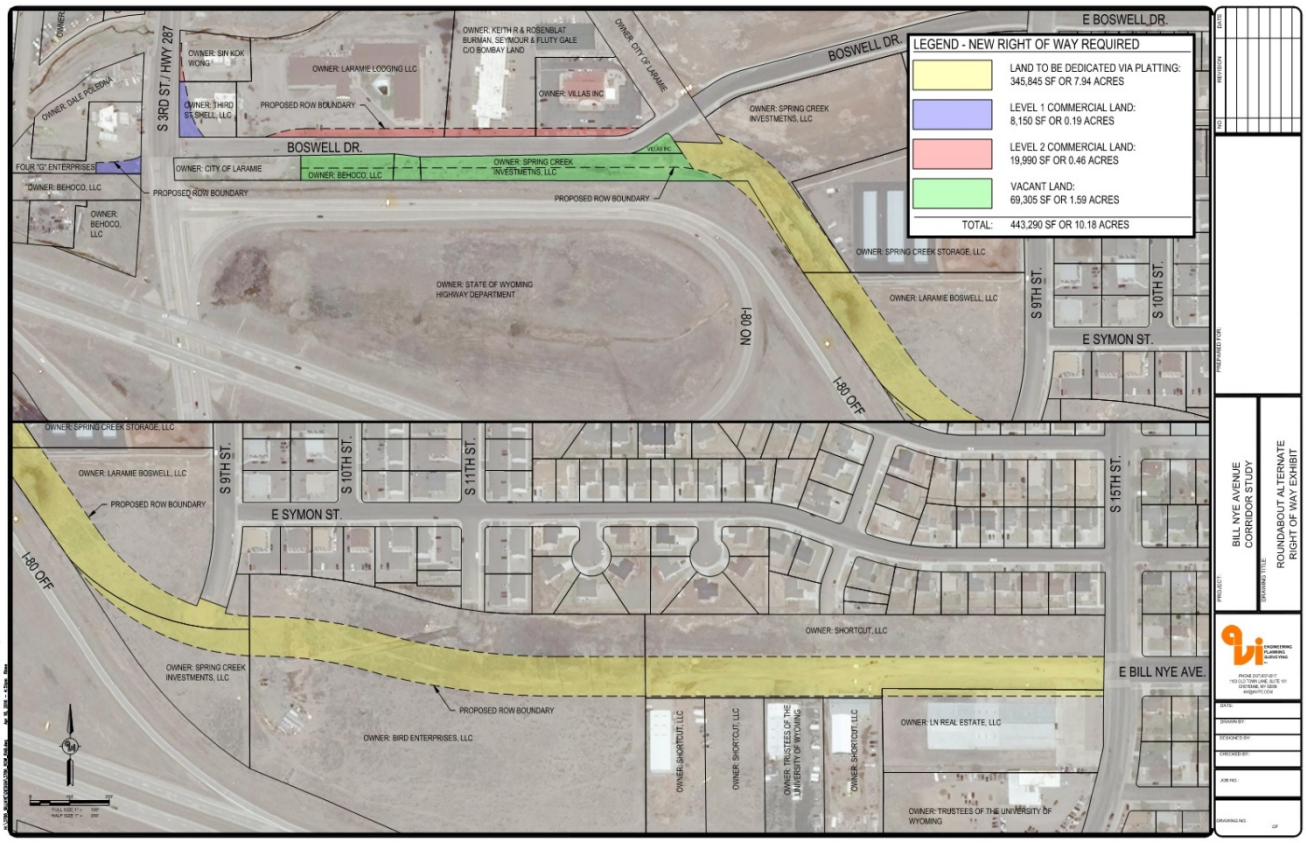


Figure 5.14 Right-of-way Requirements Alternative 4

Figure 5.15 Alternative Right-of-way Requirements Alternative 4 Detail

Engineer's Opinion of Probable Costs

Cost estimates for the alternatives were developed using the following information and assumptions. Please note that the total costs and unit prices are calculated in Present Worth or Present Value dollars. Adjustments should be made for years beyond the present to better estimate the needed dollars for any future improvement plan(s).

Table 5.4 Cost Estimates

Description of Area	Construction Cost (1)	Right-of-way Cost (2)	Engineering Design (3)	Total	For Estimate
Alternative 1: **Do Nothing**	$ 283,376.10	$ -	$ 24,641.40	$ 308,017.50	**$ 310,000**
Alternative 2: **Realign Boswell Drive**	$ 4,375,468.25	$ 1,589,020.00	$ 190,237.75	$ 6,154,726.00	**$ 6,160,000**
Alternative 3: **East Palmer Drive**	$ 6,059,914.65	$ 148,140.00	$ 263,474.55	$ 6,471,529.20	**$ 6,480,000**
Alternative 4: **RAB 3rd Street**	$ 4,916,573.15	$ 798,820.00	$ 427,528.10	$ 6,142,921.25	**$ 6,150,000**

Cost Estimates were developed using data from the Colorado Department of Transportation (CDOT) 2014 & 2015 Cost Data Book compiled by the Engineering Estimates and Marketing Analysis Unit; 2014 & 2015 Weighted Average Bid Prices, complied by WYDOT; Typical Costs from historical AVI project experience.

Right-of-way costs are based on listed values of adjacent similar properties gathered by the City of Laramie Planning Division and historical AVI project experience from projects in the region and projects with similar characteristics.

Quantities are based on the Conceptual Improvement Plan layouts. Please see Appendix E for additional information.

Conceptual Options and Recommended Alternative

As previously discussed, the goal of the recommended alternative was to create a practical alignment that resulted in a multi-model corridor which fulfilled the following primary objectives:

- Is sensitive to the needs of the property owners,
- Promotes safety,
- Minimizes long term maintenance,

- Serves all transportation users,
- Facilitates inner City connectivity,
- Encourages economic development.

In order to properly evaluate the alternatives and ultimately make a recommendation, a systematic approach was utilized based on criteria developed from the primary purpose, goals, and objectives of the corridor. Fundamentally, the primary purpose of the Bill Nye Corridor extension is to facilitate inner City connectivity and encourage economic development. Consequently, the following criteria were developed and used to determine the recommended alignment alternative.

Evaluation Criteria

- **Construction Cost**. Preliminary level construction costs are summarized in **Table 5.4 Cost Estimates** and detailed in **Appendix D**.
- **Right-of-way Cost**. Estimated areas of right-of-way requirements for each alternative were used to estimate right-of-way cost. See **Figure 5.10** to **Figure 5.15** and **Table 5.4 Cost Estimates**.
- **Constructability**. The constructability parameter is based the ease of construction and the ability to create the minimum impact of activities to adjacent landowners, businesses, and the traveling public.
- **Ability to Phase Construction**. The relative ease of constructing an alternative in sequential phases or layered components.
- **Maintenance Cost**. This consists of operating costs and indirect costs for maintenance. Maintenance includes routine upkeep, replacements. Indirect costs are unforeseen expenditures that may occur as a result of implementation of an alternative (e.g. impact cost to other roadways, etc.).
- **Public Consensus**. Input from the public involvement process based on the written and verbal comments received and summarized in the Foundation section of the study.
- **Direct Property Impacts**. The amount of relative negative impact of an alternative to existing business or property based on physical impact as a result of property requirements or change in access points.
- **Adjacent Impacts**. Adverse impacts including the effects on neighborhoods, intersection proximity to other major roads by implementing or modifying the corridor.
- **Environmental Impact**. The alternative has potential to affect environmental constraints such as wetlands, waterbodies, floodplains, etc. Please see the Environmental Review, **Appendix F**.
- **Qualitative Traffic Analysis**. The alternative that best provides the highest operation level or service at the horizon year 2035. See **Appendix D Traffic Analysis, Table 3** for additional information.
- **Meets the Project Purpose**. The alternative the best meets the project state of purpose to facilitate inner City connectivity and encourage economic development.

The following **Table 5.5 Alternatives Analysis** summarizes the alternative analysis and identifies the preferred alternative based on the evaluation criteria. The weighted scoring is set up with one (1) being the least expensive or easier to complete and four (4) being the more expensive or harder to complete, one (1) being the best ranked or (4) being the worst ranked, or one (1) being the most favorable and four (4) being the least favorable. Based upon the scoring criteria the option with the lowest average is the highest-ranking option.

Table 5.5 Alternatives Analysis

Criteria	Alternative 1 Do Nothing	Alternative 2 Boswell Realignment	Alternative 3 E. Palmer Extension	Alternative 4 RAB at 3rd Street
Construction Cost	1	2	4	3
Right-of-way Cost	1	2	4	3
Constructability	1	4	3	2
Ability to Phase Construction	1	4	3	2
Maintenance Cost	4	1	2	3
Public Consensus	4	1	3	2
Direct Property Impacts	1	4	2	3
Adjacent Impacts	4	3	2	1
Environmental Impact	Yes	Yes	Yes	Yes
Qualitative Traffic Analysis	4	3	2	1
Meets Goals and Objectives	4	3	1	2
Average	**2.5**	**2.7**	**2.6**	**2.2**

Table 5.5 Alternatives Analysis provides an excellent overall summary of the fundamental components reviewed throughout the corridor study. However, the table does not place a weight or value to each of the individual criteria listed. The value of a particular criterion is subjective and therefor depends on the perspective of the person assessing measures. All the final proposed conceptual alternatives presented meet the goal, purpose, and objective of the alignment with the exception of the “Do Nothing” option. This option fails to meet the project needs and may impact Spring Creek and associated wetlands. Therefore, it was eliminated from final consideration as a viable alternative. Furthermore of the remaining three alternative alignments, Alternative 2: Realign Boswell Drive significantly impacts the existing building structures and businesses. Given that that some of the businesses would be required to relocate, we also eliminated that option from the final consideration.

As shown in **Table 5.5 Alternatives Analysis** the remaining two alternatives Alternative 3: E. Palmer Drive and Alternative 4: Roundabout at 3rd Street clearly separated themselves from the others in terms of meeting the overall goals, objectives, and criteria of the project. Both of these alternatives received positive feedback from the public open house, create the required east west connection across Laramie, and can handle the future traffic demands projected for the area.

Several design challenges are related to the development of a roundabout due to the proximity of to the existing Shell Service Station at the northeast corner of Boswell Drive and 3rd Street and accommodation of large trucks and emergency vehicles. Through proper design, roundabouts can easily accommodate emergency and large sized vehicles. Other special design considerations for this roundabout includes: truck movements; pedestrian and bike accommodation; single lane to double lane signing and stripping issues. However, we recommend Alternative 4: Roundabout at 3rd Street based on the following reasons:

- Improved Safety (e.g. Reduce injury crashes). It should be noted that property damage crashes will likely increase until users become accustomed to traversing the roundabout but, serious crashes will be virtually eliminated compared to four-way or signalized intersection.
- Reduced long term maintenance cost
- Improved traffic flow and efficiency
- No signal equipment to install and repair (i.e. savings on electrical and maintenance costs).
- Improved traffic flow and efficiency for intersections that handle left turns
- Eliminates the need for a for future anticipated and projected signalization of WBL On/ Off Ramps
- Reduces confusion related to the I-80 WB On/ Off Ramp location and separation for non-local traffic
- Eliminates the need for auxiliary storage lanes
- Slower traffic speeds
- Create a Southern Gateway into Laramie
- 3rd Street box culvert extension required instead of bridge or large culvert installation for the E. Palmer Drive Extension.

The final recommendation is for the City of Laramie to set aside or appropriate funds and hire a consultant to complete 100% construction drawings of the corridor.

Summary of Corridor Recommendations

Funding Options:

- The public sector (City of Laramie, WYDOT, etc.) will primarily play an important role in "readying the area for private investment" through infrastructure improvements, public planning and policy initiatives. From these initiatives and/or investments, private sector development and redevelopment can be leveraged.
- Funding mechanisms for public infrastructure could include loans and grants (e.g., Wyoming Business Council's Business Ready Community Program and Community Facilities Grant and Loan Program); Community Development Block Grant (CDBG) funds; revenue bonds; and general obligation bonds; and 1% Special Use Tax.
- A public-private partnership for development will likely take many forms and have many partners, responsibilities and funding alternatives. In the end, a successful partnership will ensure that both the public and private sectors will realize reasonable returns on their investments and the community will realize their long-term vision for this important transportation corridor.

Recommendations:

- Fund a design /drainage improvement plan for the construction of the corridor and proposed two lane roundabout improvements for Alternative 4: Roundabout at 3rd Street.
- Implement wet and dry utility priority projects as funding resources become available or development becomes the catalyst.
- Reserve right-of-way as development occurs along the undeveloped corridor.
- Implement Construction Phased Strategies along Corridor.
- Explore opportunities, as area develops, to provide roadway storm water detention / retention features / facilities.
- Implement Typical Section(s) as development occurs.
- Update/ install strategic street lighting at key intersections as development occurs.

APPENDIX A

Improvement Plans

ENGINEERING
PLANNING
SURVEYING
PC

35% DESIGN PLANS FOR

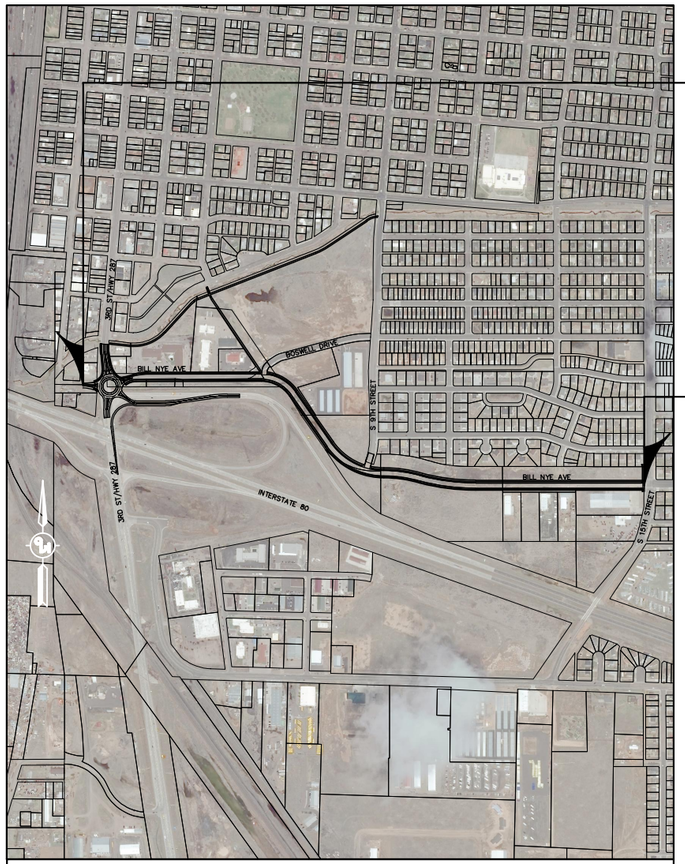
BILL NYE AVENUE CORRIDOR PLAN

OWNER

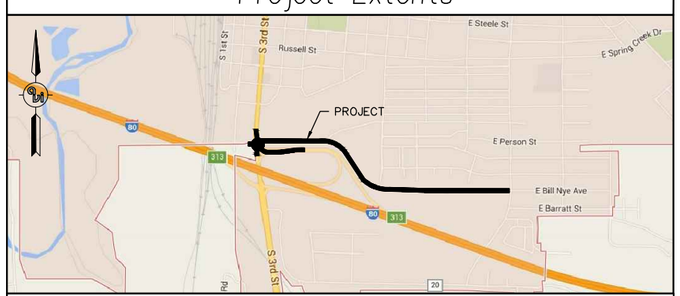
CITY OF LARAMIE
406 IVINSON STREET
CHEYENNE, WY 82070

ENGINEER:

AVI PC
1103 OLD TOWN LANE, SUITE 101
CHEYENNE, WYOMING 82001
307.637.6017
FAX 307.632.9326
WWW.AVIPC.COM



Project Extents



Vicinity Map – Laramie, Wyoming

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3 – 6	BILL NYE AVE PLAN & PROFILES
7	3RD STREET PLAN & PROFILE

ROADWAY LENGTHS	
BILL NYE AVE	5,003 FT
3RD STREET	659 FT
TOTAL	5,662 FT

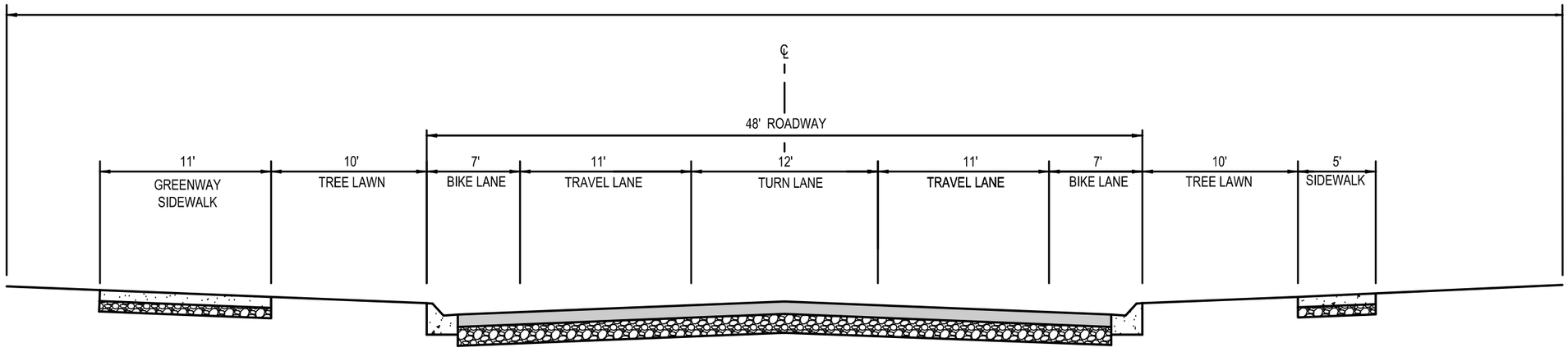
ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF WYOMING.

811 Know what's **below.** **Call** before you dig.

PROJECT SURVEY DATUM
HORIZONTAL DATUM: _____
VERTICAL DATUM: _____

BILL NYE AVENUE
PROPOSED TYPICAL SECTION
WEST TO EAST



NO.	REVISION	DATE

PREPARED FOR:
CITY OF LARAMIE
406 IVINSON ST
LARAMIE, WY 82070

PROJECT:
BILL NYE AVENUE CORRIDOR STUDY

DRAWING TITLE:
TYPICAL SECTION

ENGINEERING
PLANNING
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PC
307.637.6017
1103 OLD TOWN LANE, SUITE 101
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AVI@AVIPC.COM

DATE:
3/18/2016
DRAWN BY:
JDW
DESIGNED BY:
JDW
CHECKED BY:
TDC

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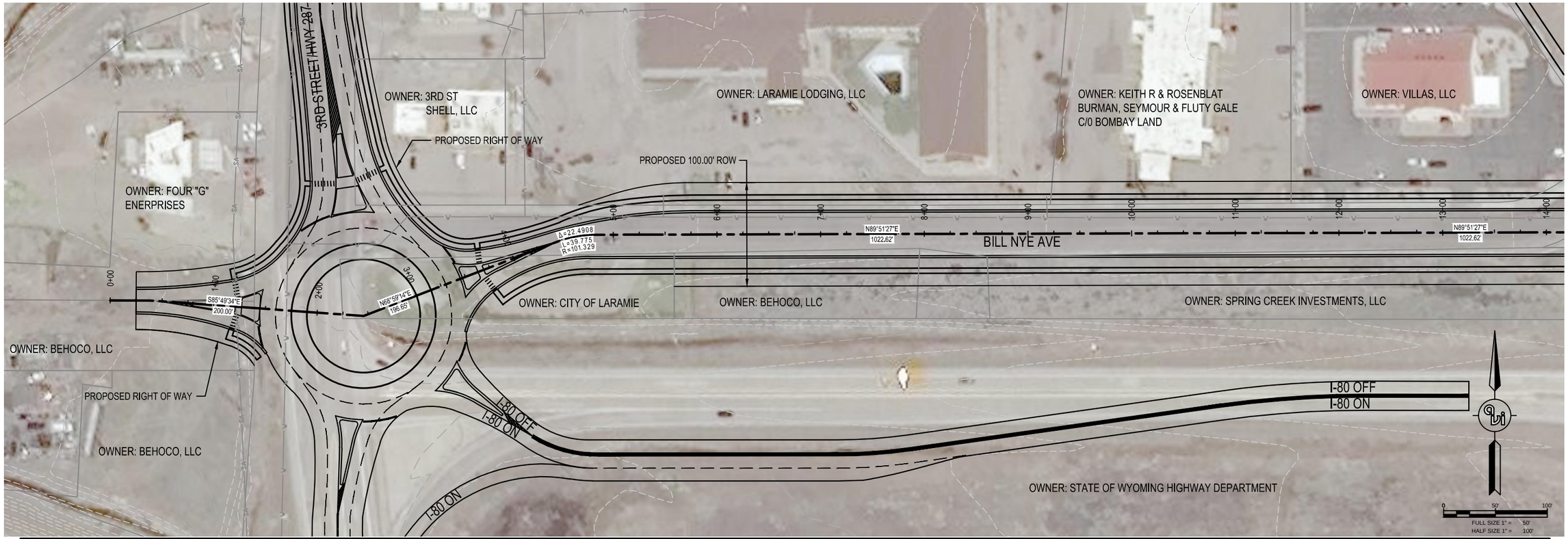

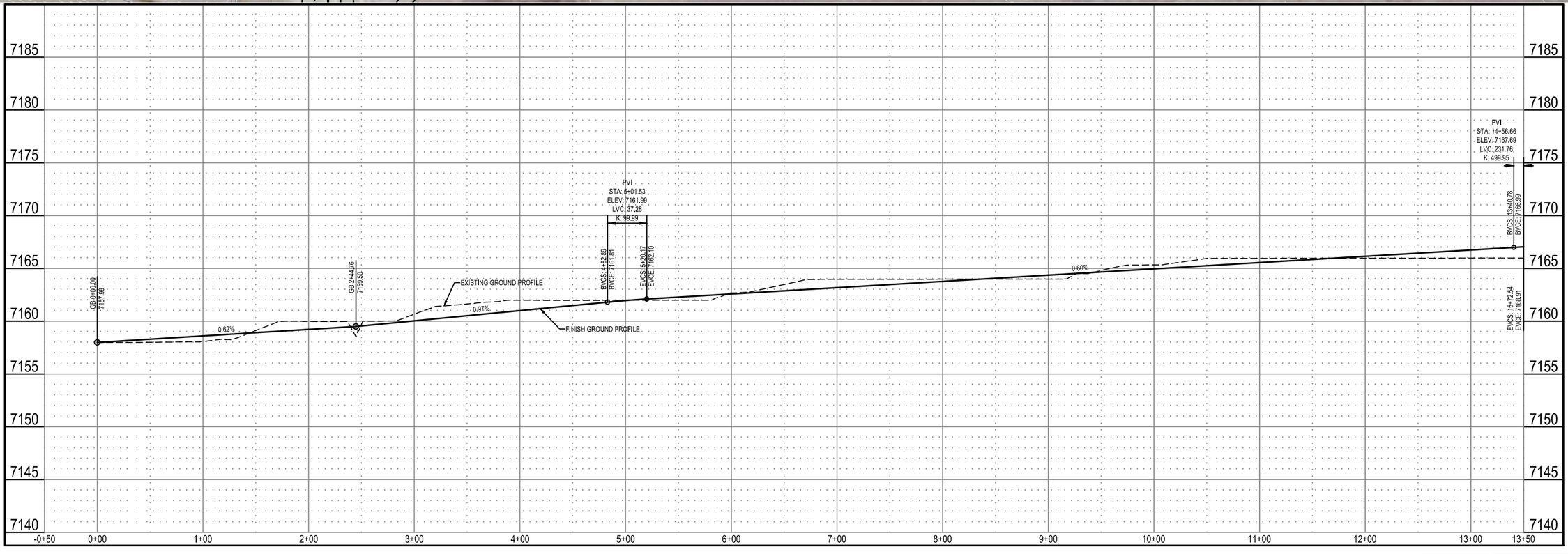

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NO.	REVISION	DATE

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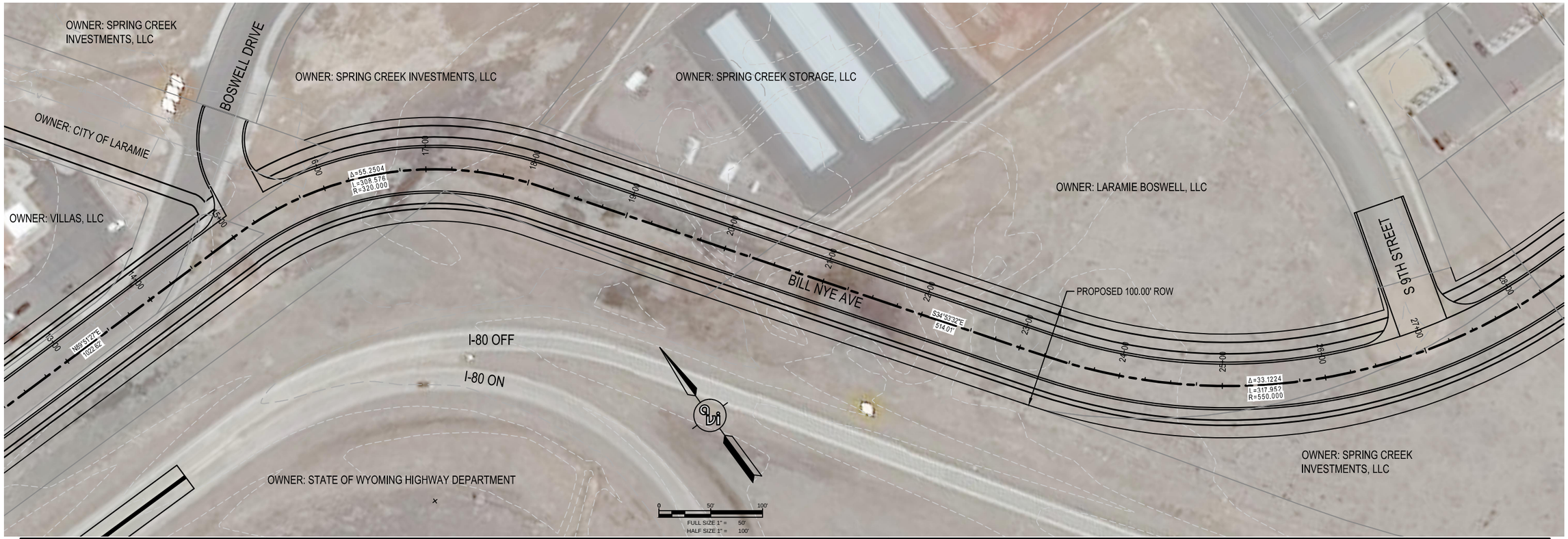

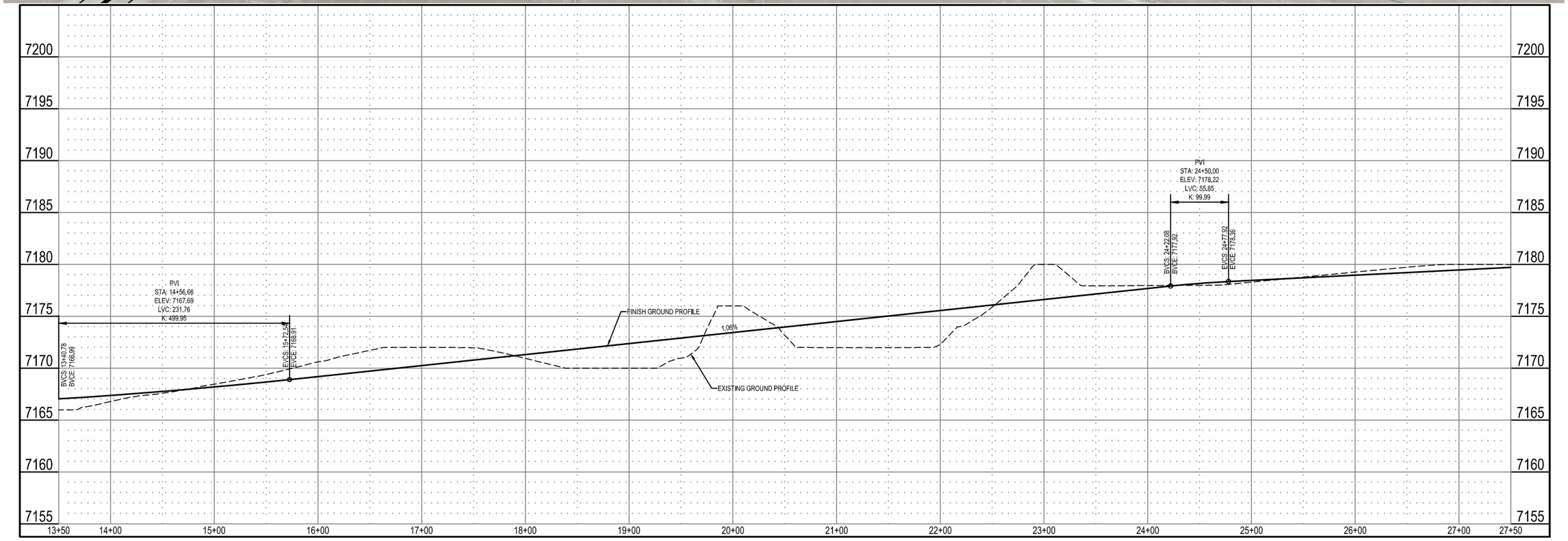

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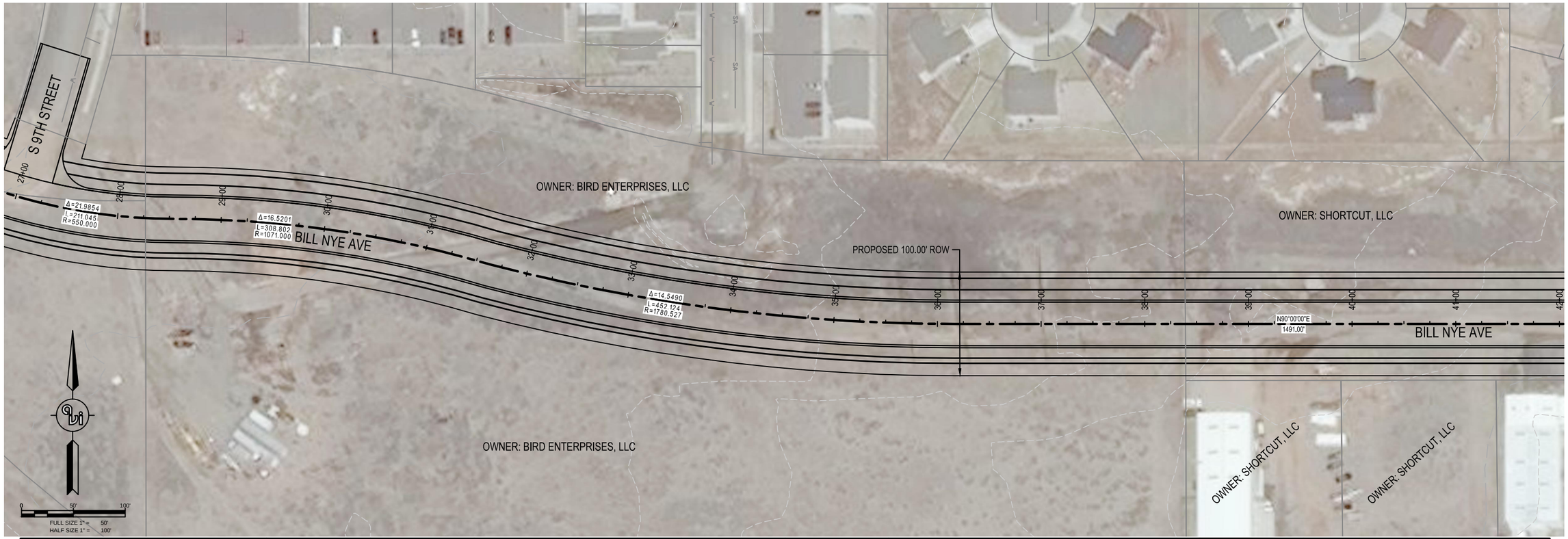

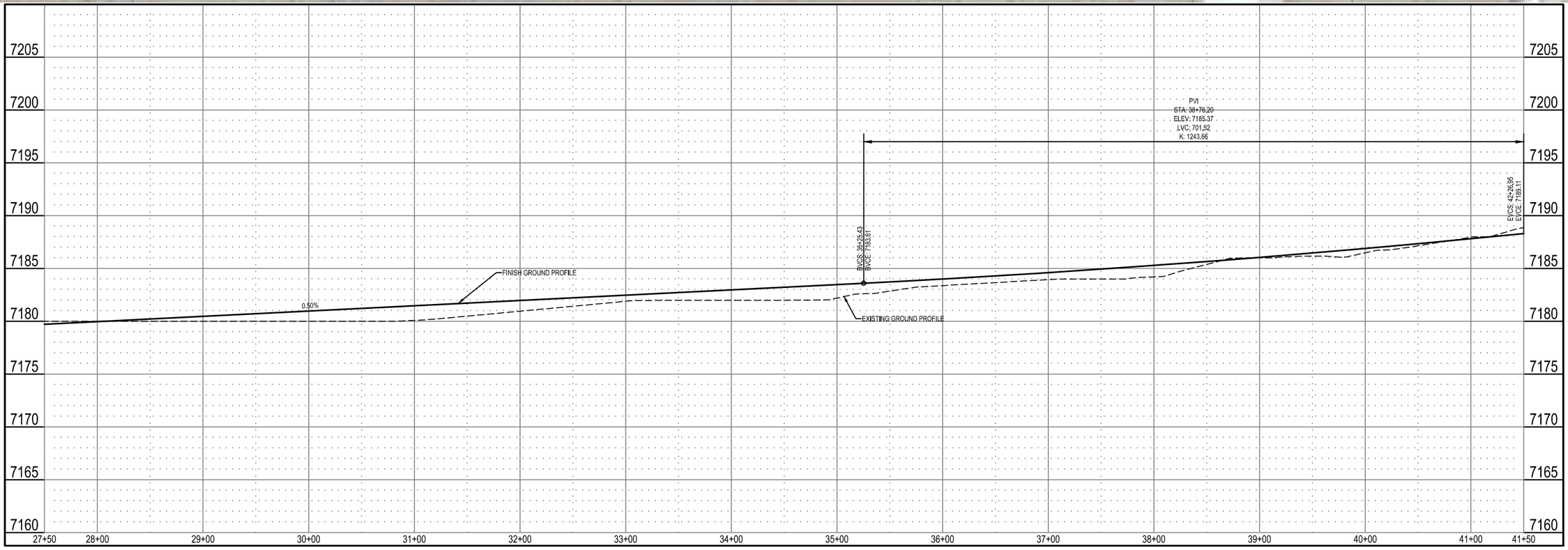

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CITY OF LARAMIE
406 IVINSON ST
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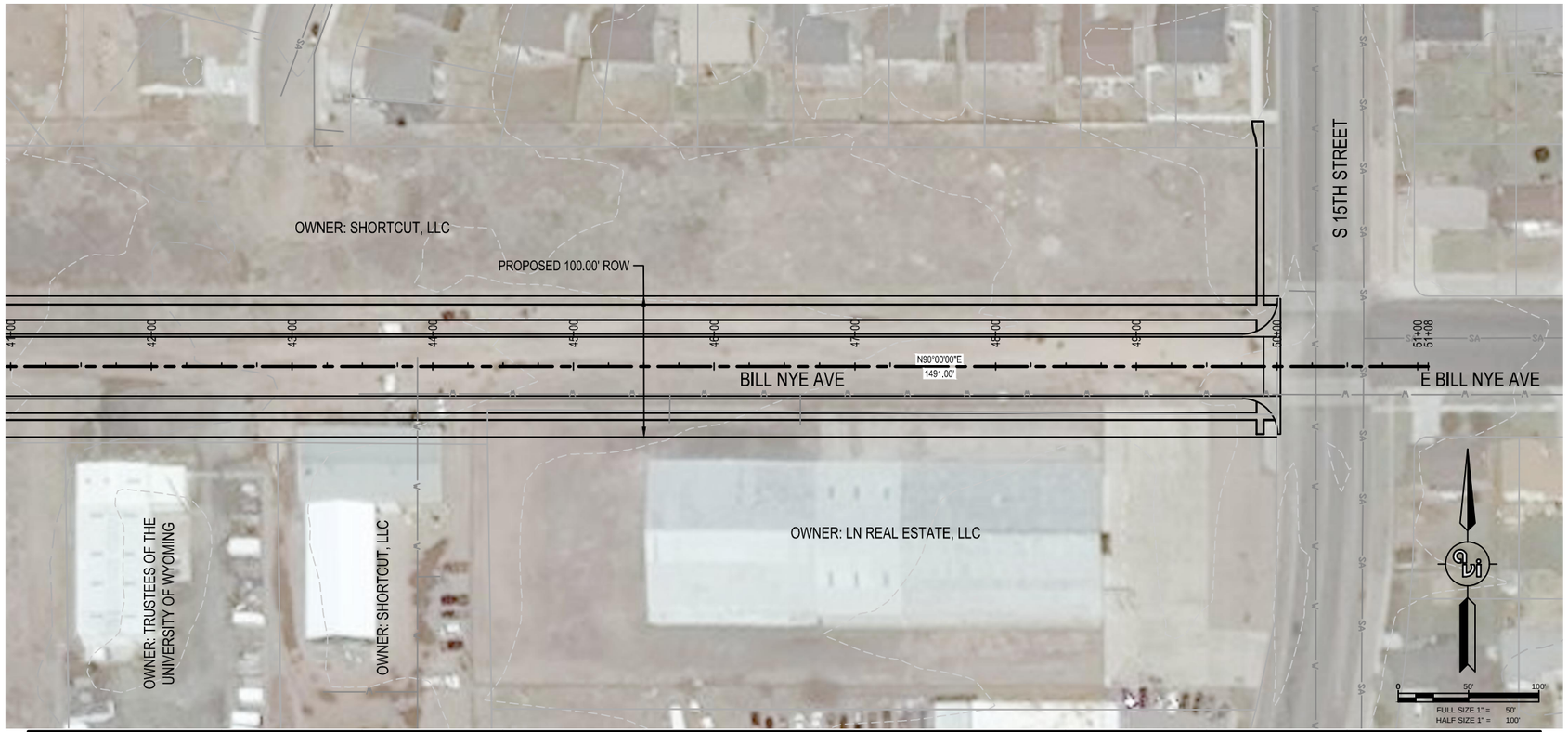

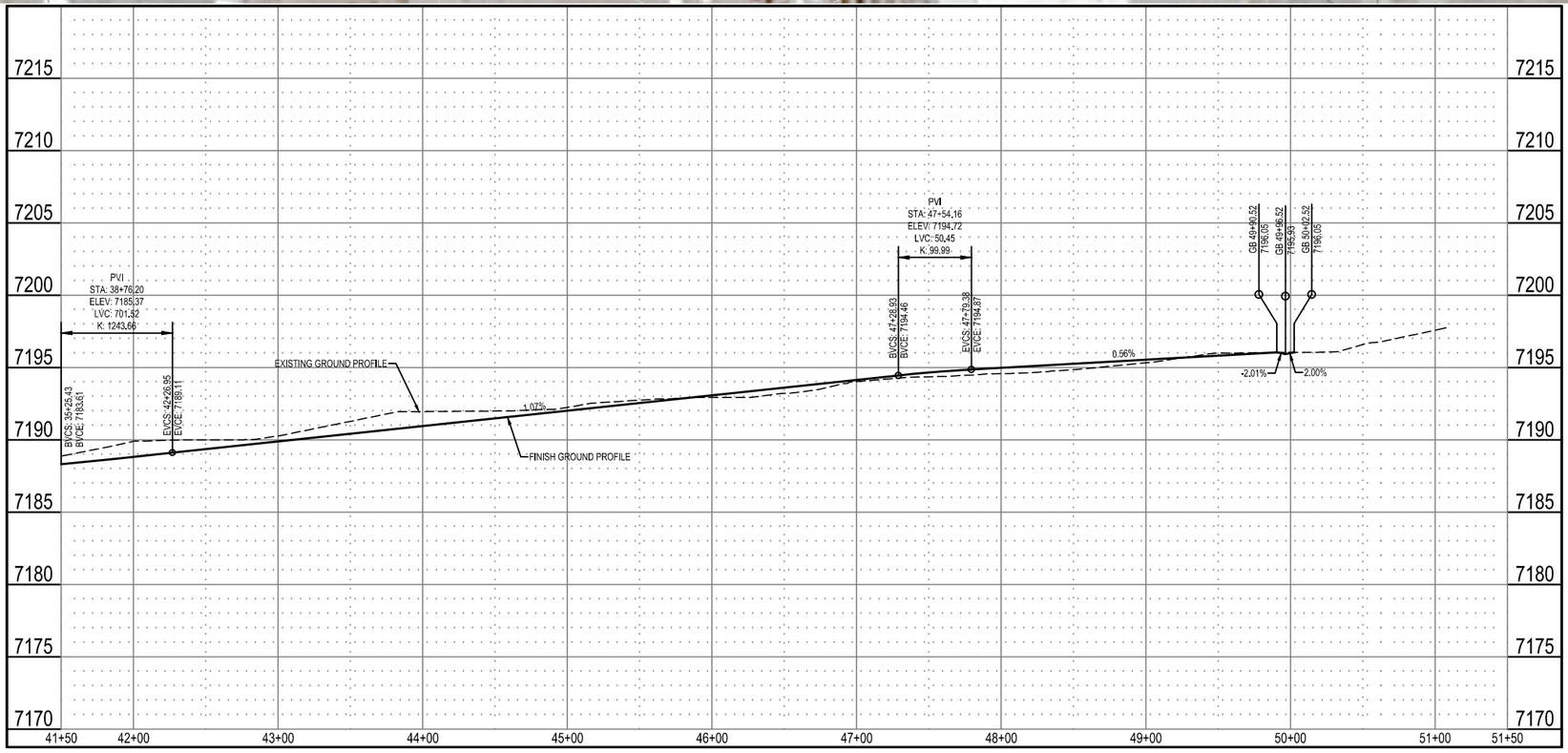

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PROJECT:
BILL NYE AVENUE CORRIDOR STUDY

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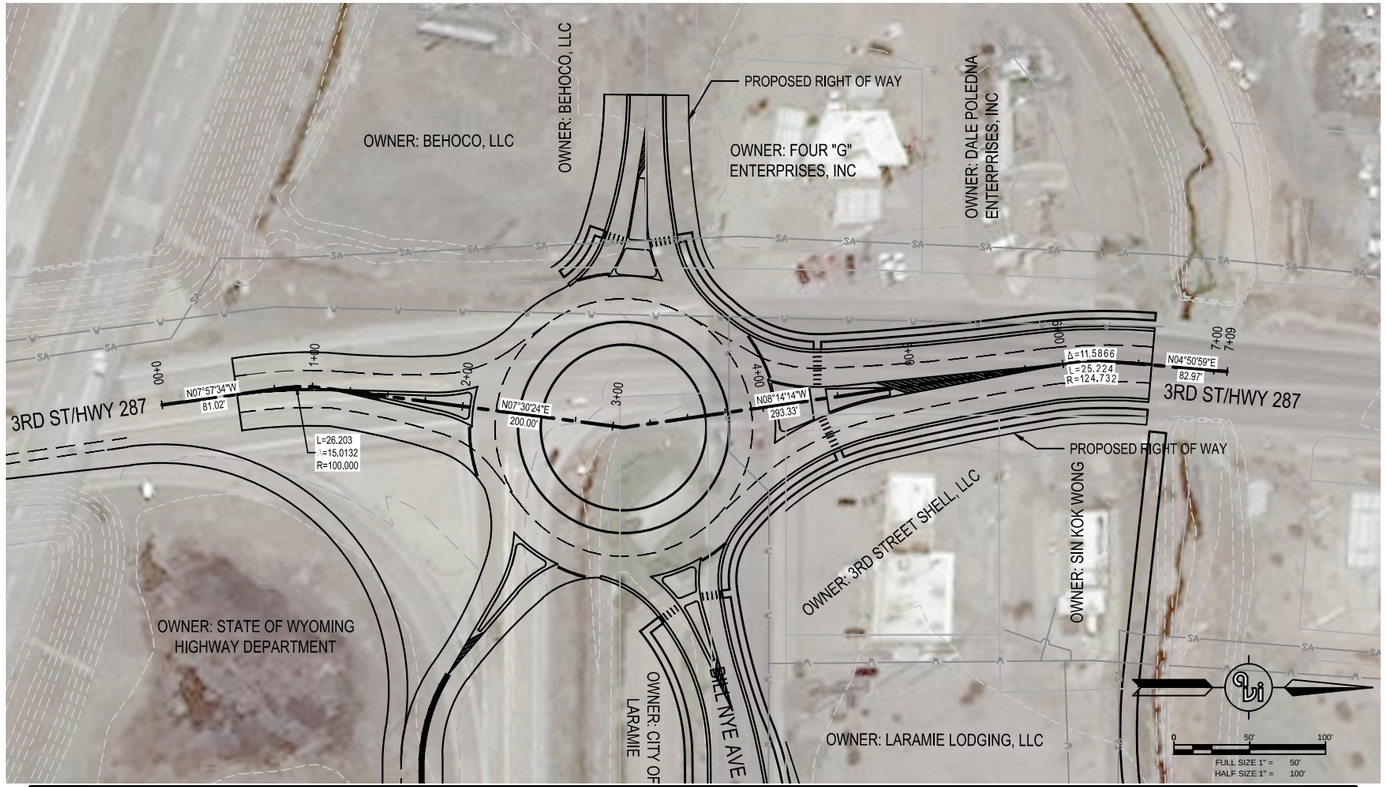

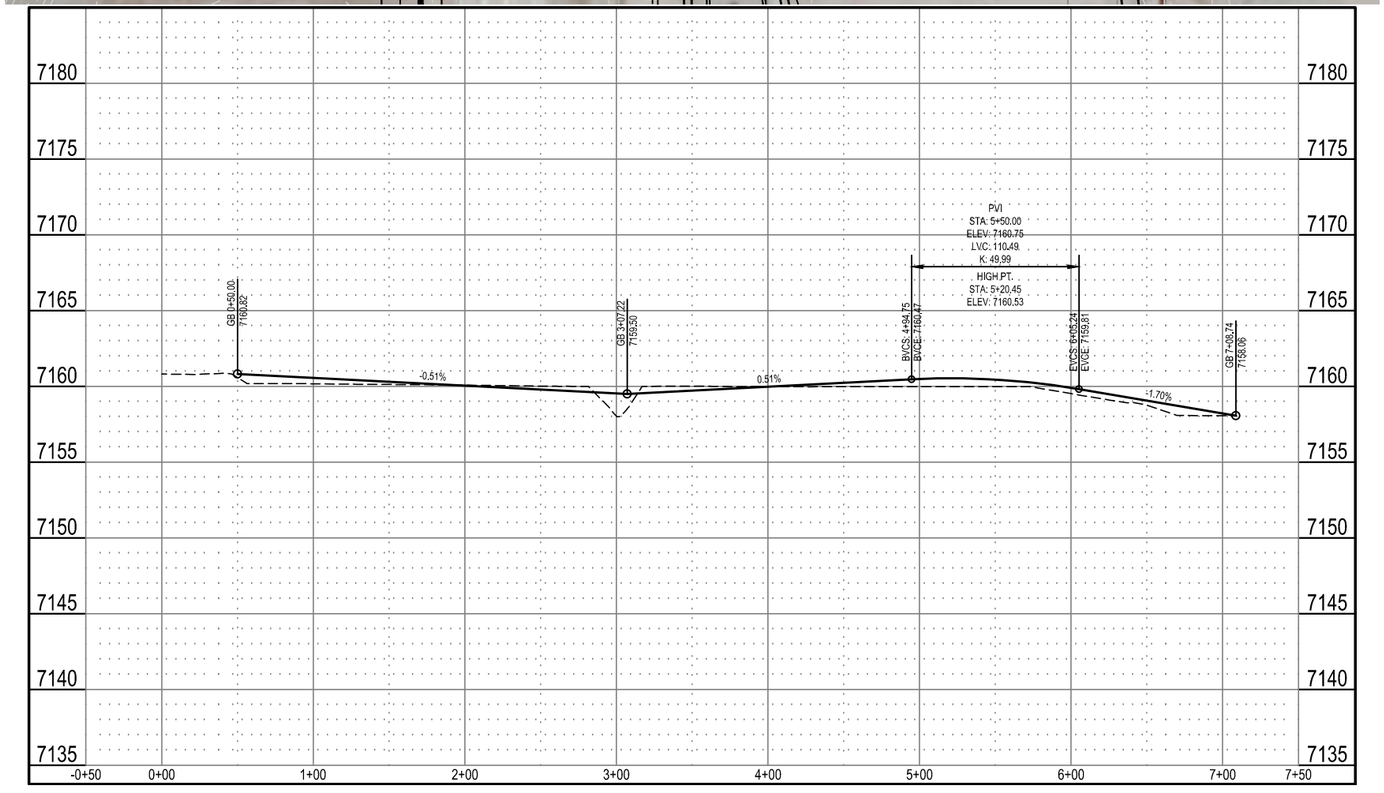

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PROJECT:
BILL NYE AVENUE CORRIDOR STUDY

DRAWING TITLE:
3RD STREET PLAN & PROFILE

ENGINEERING PLANNING SURVEYING PC
307.637.6017
1103 OLD TOWN LANE, SUITE 101
CHEYENNE, WY 82009
AVI@AVIPC.COM

DATE: 3/18/2016
DRAWN BY: JDW
DESIGNED BY: JDW
CHECKED BY: TDC

JOB NO.: 2-3786.15

DRAWING NO. 7 OF

H:\3786_BILLNYE\DESIGN\3786_DESIGN.dwg Mar 18, 2016 - 3:59pm jwilson

APPENDIX B

Public Meetings

ENGINEERING
PLANNING
SURVEYING
PC

City of Laramie
406 Ivinson St.
Laramie, WY 82070

City of Laramie
406 Ivinson St.
Laramie, WY 82070

City of Laramie
406 Ivinson St.
Laramie, WY 82070

City of Laramie
406 Ivinson St.
Laramie, WY 82070

Bill Nye Avenue Corridor Study

When: Wed. October 21, 2015
Where: Albany County Library
310 S 8th St
Laramie, WY 82070

Time: 5:00 p.m. – 7:00 PM
Presentation at 5:15 p.m.

The purpose of this meeting is to provide an update on the plan, further solicit ideas and comments.

For additional information and updates, please check the City of Laramie Website at http://www.ci.laramie.wy.us/
Or Contact Tom Cobb at AVI, P.C. email: cobb@avipc.com or 307.637.6017

Bill Nye Avenue Corridor Study

PLEASE JOIN US for a OPEN HOUSE & PRESENTATION

When: Wed. October 21, 2015
Where: Albany County Library
310 S 8th St
Laramie, WY 82070

Time: 5:00 p.m. – 7:00 PM
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FOUR G" ENTERPRISES INC
PO BOX 310
LARAMIE, WY 82073

ELKEN, CAROLYN
PO BOX 9494
RANCHO CUCAMONGA, CA 91701

DAVIS FUNERAL HOME INC
2203 W MAIN ST
RIVERTON, WY 82501

BIRD ENTERPRISES, LLC, A WY LLC
PO BOX 1363
LARAMIE, WY 82073

BELL, JOHN W; ROBERT L SR
PO BOX 1232
LARAMIE, WY 82073

DAVIS, ROBERT P; DEBRA B
3416 MAMMOTH CT
LARAMIE, WY 82072

ALBURN, CRAIG ROBERT; ANN M
1083 DUNA DR
LARAMIE, WY 82072

FORRY, TODD S; DEBY L
2713 DOVER DR
LARAMIE, WY 82072

DEYOUNG, CHRISTOPHER JORDAN, JANINE
1555 N 22ND ST
LARAMIE, WY 82072

DREW, THOMAS D; KAREN M
1602 DOWNEY ST
LARAMIE, WY 82072

DESALLE, MARC; CRYSTAL
1510 ORD ST
LARAMIE, WY 82070

A.M. RENTALS, LLC, A WY LLC
1309 SPRING CREEK DR
LARAMIE, WY 82070

BOUTILLIER, GLENN
1019 S 10TH ST
LARAMIE, WY 82070

GOODIN, SUSANNA
1005 S 7TH ST
LARAMIE, WY 82070

BELL, ROBERT L; JOHN W
1303 S 2ND
LARAMIE, WY 82070

GASSON, WALTER F
REVOCABLE TRUST GASSON,
KIM REVOCABLE TRUST
10115 WIND DANCER RD
CHEYENNE, WY 82009

STROOT, MATTHEW P
PO BOX 2439
LARAMIE, W 82003

COLLINS, MICHAEL D & STACY J
9056 US HIGHWAY 285 S
ALAMOSA, CO 81101

ANDERS, RANDALL F & ROBIN S
8443 US HIGHWAY 85
FORT LUPTON, CO 80621

BUTCHER, CLINTON H
7005 BLACK RIDGE DR
EL PASO, TX 79912

DAVIES, JOSEPH P & TASHA M TRUST DAVIES, JOSEPH P & TASHA M, TRUSTEES
14108 ENGLAND ST
OVERLAND PARK, KS 66221

DOUBLE G VENTURES LLC, A WY LLC
ATTN: GRAHAM, TODD
PO BOX 6279
BOZEMAN, MT 59771

GOODTREE DEVELOPMENT CO II, LLC, A WY LL
ATTN: GOODMAN, PHILLIP
2475 STUART ST
BROOKLYN, NY 11229

CHITOOR, CHANDRAMOHAN SRIDHARAN
324 CONSTITUTION CIRCLE
NORTH BRUNSWICK, NJ 08902

SMITH-CONROY LIVING TRUST SMITH-CONROY, DIANE & DEAN P, TRUSTEES
4460 B GROUSE CREEK RD
CHEWELAH, WA 99109

GOLIKE, SCOTT A & ROBERTA L
15841 28TH AVE NE
SHORELINE, WA 98155

MARTIN, LING; RAYMOND S III
47736 AVALON HTS
FREMONT, CA 94539

MARTIN, RAYMOND S; LING
47736 AVALON HTS TER
FREMONT, CA 94539

LINDER FAMILY REV TRUST LINDER, DAVID C, JR; REGINA D TTEES
130 E WOODWARD DR
TULARE, CA 93274

FRAZIER, JANET LEE
25422 TRABUCO RD STE 105-391
LAKE FOREST, CA 92630

NELSON, THOMAS A
26131 MCBEAN PKWY 120
VALENCIA, CA 91355

STILLINGS, LISA LYNN POULSON, SIMON ROGER
3352 EVERETT DR
RENO, NV 89503

SONDEREGGER, DEREK L
3850 N PATTERSON BLVD
FLAGSTAFF, AZ 86004

KELLOGG, DAVID H LIV TRUST KELLOGG, DAVID H TRUSTEE
60366 E ANKOLE DR
ORACLE, AZ 85623

PODLESNIK, ADELAIDE A ATTN: PODLESNIK, ADELAIDE C
5927 E AIRE LIBRE LN
SCOTTSDALE, AZ 85254

LEE, MICHELLE L
200 E KNOX RD LOT 182
CHANDLER, AZ 85225

LARAMIE BOSWELL, LLC, A UT LLC
230 EAST SOUTH TEMPLE
SALT LAKE CITY, UT 84111

ESPENSCHEID, BRIAN & ANNE E ESPENSCHEID, CHAD & GUDRID
PO BOX 430
BIG PINEY, WY 83113

MILL CREEK PROPERTIES, LLC ATTN: FENN, WILLIAM F
PO BOX 423
PINEDALE, WY 82941

PETERSON, ADRIANNE
PO BOX 1186
PINEDALE, WY 82941

VICKREY, MICHAEL D & DEBORAH J
PO BOX 441
PINEDALE, WY 82941

MCKINNEY PROPERTIES, LLC, A WY CLOSE LLC ATTN: MCKINNEY, TIM/JENNIFER
PO BOX 35
102 NOBLE RD
CORA, WY 82925

FIELDS, CHRISTOPHER A; CONNIE J GILCHRIST, GREGORY LEE
805 EISENHOWER DR
ROCK SPRINGS, WY 82901

GRAY, LEONARD A & BRENDA G
1008 PINTO
ROCK SPRINGS, WY 82901

GREIG, T; WEST, J; PELDO, C; LEE, R
426 SHADOW RIDGE BLVD
SHERIDAN, WY 82801

STEIR, JOHN & PEGGY
1441 N HEIGHTS AVE
SHERIDAN, WY 82801

GREEN, CHARLES GREGORY GREEN, ALLEN
70 HAYFIELD PLACE
GILLETTE, WY 82718

BOUZIS, NEKTARIOS ANTHONY
708 W 8TH ST
GILLETTE, WY 82716

THOREN, BRUCE J & SABRINA
PO BOX 178
SHOSHONE, WY 82649

ANDERSON FAMILY TRUST ANDERSON, LINDA L & MARLIN D, TRUSTEES
358 ESTERBROOK RD
DOUGLAS, WY 82633

BOYER, BRYAN G & TAMI L
1 SIERRA
DOUGLAS, WY 82633

LUCK-TORRY, KERRY
521 SEMINOE ST
CASPER, WY 82609

WIGINTON, CECIL; LYNNETTE
2050 W 38TH ST
CASPER, WY 82604

ROMAN REAL ESTATE & INVESTMENTS, LLC ATTN: MCINTYRE, RYAN
152 N DURBIN ST
STE 404
CASPER, WY 82601

REYNOLDS, DON A; CORA LEE
809 VANCE DR
LANDER, WY 82520

SORENSON, DAVID O & LEA R
1006 LANE 12
LOVELL, WY 82431

SANDRY, KELLY L & DONNA K
197 ROAD 20
CODY, WY 82414

SAULCY, JUDITH J FAMILY TRUST SAULCY, WILLIAM R, JR, TRUSTEE
PO BOX 127
ENCAMPMENT, WY 82325

OSBURN PROPERTIES, LLC, A WY LLC
PO BOX 565
GUERNSEY, WY 82214

PINNEO, KENNETH W; VICKI L
1354 SPRUCE ST
WHEATLAND, WY 82201

WHITNEY, FAY W
PO BOX 609
WHEATLAND, WY 82201

HOLMES, BRADLEY ALLEN; JULIE VIRGINIA
HC 64 BOX 402
MCFADDEN, WY 82083

BLUE SKY TECHNOLOGIES A WY CORP
PO BOX 1436
LARAMIE, WY 82073

BROWN, DORIS ANITA
PO BOX 177
LARAMIE, WY 82073

CANTWAY, D L LIV TRUST CANTWAY, D L & LINDA D TRUSTEES
PO BOX 1371
LARAMIE, WY 82073

DILLINGER, LOUIS F LIV TRUST DILLINGER, CAROL L LIV TRUST
PO BOX 914
LARAMIE, WY 82073

FELTZ, WAYNE
PO BOX 773
LARAMIE, WY 82073

GIEHM, NOEL & JANET LIVING TRUST GIEHM, NOEL R & JANET K, TRUSTEE
PO BOX 516
LARAMIE, WY 82073

JAIRELL, RUSSELL J
PO BOX 151
LARAMIE, WY 82073

JOHNSTON, RALPH R
PO BOX 702
LARAMIE, WY 82073

JONES, RODNEY G; CHLOE M
PO BOX 1044
LARAMIE, WY 82073

KENNEDY, THOMAS C REV TR ATTN: FIRST WESTERN TRUST BANK
PO BOX 1628
LARAMIE, WY 82073

KUNKEL, GARY GROSSI, SYLVIA
PO BOX 1063
LARAMIE, WY 82073

LARAMIE LAWNERY INC ATTN: RERUCHA, LUKE
PO BOX 425
LARAMIE, WY 82073

LINDGREN, CECILIA RAMIREZ, RANDAL
PO BOX 1010
LARAMIE, WY 82073

MACKINTOSH, FREDERICK JOHN & JESSICA L
PO BOX 1684
LARAMIE, WY 82073

MILLAR, ALAN J
PO BOX 681
LARAMIE, WY 82073

MILLER, GERALD R
PO BOX 1424
LARAMIE, WY 82073

MORENO, LLC, A WY LLC
PO BOX 1538
LARAMIE, WY 82073

MRH HOLDING, LLC, A WY CLOSE LLC
PO BOX 1670
LARAMIE, WY 82073

N K LEASING LLC ATTN: GIEHM, NOEL
PO BOX 516
LARAMIE, WY 82073

PETERSON, JERALD J
PO BOX 1174
LARAMIE, WY 82073

RAKESTRAW, DAVID D
PO BOX 2447
LARAMIE, WY 82073

RASMUSSEN, EDWARD C & ELIZABETH H
PO BOX 1621
LARAMIE, WY 82073

REHWALDT, MARK D LAWRENCE, JENNIFER J
PO BOX 893
LARAMIE, WY 82073

SATO, HIROKO
PO BOX 1103
LARAMIE, WY 82073

THIRD STREET SHELL, LLC, A WY LLC
ATTN: WARREN, GREG
PO BOX 370
LARAMIE, WY 82073

WAGGONER, JAMES WILLIAM; KARRI KAY
PO BOX 2124
LARAMIE, WY 82073

WOLF, JOE & JENNY
PO BOX 276
LARAMIE, WY 82073

WYOMING CONFERENCE ASSOCIATION OF
SEVENTH-DAY ADVENTISTS
PO BOX 945
LARAMIE, WY 82073

BARTKE, THEODORE & DIANA L
1160 ESCALERA DR
LARAMIE, WY 82072

BEHOCO, LLC, A WY LLC ATTN: BALL, SUSAN C
1267 N 15TH ST STE 121
LARAMIE, WY 82072

BOUCHER, JOEL D
2503 TULLIS CT
LARAMIE, WY 82072

BROWN, C C & LORIE & YOUNG, JAMES
1364 N 6TH
LARAMIE, WY 82072

BURNS, DAVID E & LISA M
1360 INDIAN HILLS DR
LARAMIE, WY 82072

BURY, JEFFREY T & SUSAN E
2142 EDWARD DR
LARAMIE, WY 82072

DINI, TERRENCE JON
1254 APACHE DR
LARAMIE, WY 82072

DODD, MICHELLE C & JERROLD G
2053 N 22ND ST
LARAMIE, WY 82072

EDWARDS, LAURIE H REV TRUST EDWARDS,
LAURIE H, TRUSTEE
4322 CHEYENNE DR
LARAMIE, WY 82072

FALL CREEK HOMEOWNERS ASSN
418 E UNIVERSITY
LARAMIE, WY 82072

FRANC, LORI JEAN REVOCABLE TRUST FRANC,
LORI JEAN, TRUSTEE
1085 COLINA DR
LARAMIE, WY 82072

HAINES, JEANNE M
459 ROGER CANYON RD
LARAMIE, WY 82072

HOCH, ANTHONY R
571 N 8TH ST
LARAMIE, WY 82072

HOLBROOK, W STEVEN & ZARE, BONNIE
1051 DUNA
LARAMIE, WY 82072

JCC PROPERTIES, LLC ATTN: COLTER, CHRIS A
1332 GRAFTON ST
LARAMIE, WY 82072

JOHNSTON, JAMES L
530 BEAUFORT ST 82
LARAMIE, WY 82072

L & P RENTALS, LLC, A WY LLC
3419 MAMMOTH CT
LARAMIE, WY 82072

LARSEN, MICHAEL EDWARD JOHNSTON, JAMES L
530 BEAUFORT ST 82
LARAMIE, WY 82072

LOCKHART, HUGH D
23 WARREN RANCH RD
LARAMIE, WY 82072

MAJOR, BRENT
868 N 14TH
LARAMIE, WY 82072

MEDINA, BETHEL; CHRISTOPHER S
460 N 8TH ST
LARAMIE, WY 82072

MILLER, PETER J & CASSIE D
4311 GRAYS GABLE
LARAMIE, WY 82072

MILLER, RICHARD P & JAMISON M
1802 BEAUFORT ST
LARAMIE, WY 82072

NISS MANAGEMENT AND CONSULTING, LLC
ATTN: NISS, CALVIN/LISA
3714 HAYFORD ST
LARAMIE, WY 82072

PETERSON, JERALD & MARGARET
1058 ALTA VISTA DR
LARAMIE, WY 82072

REN, JUN; ZHAO, BONNIE REV TR REN, JUN; ZHAO,
BONNIE, TTEES
2429 DOVER DR
LARAMIE, WY 82072

SANDOVAL, MARK D
908 MITCHELL ST
LARAMIE, WY 82072

SCHENKER, PENNY L
1418 SYMONS ST
LARAMIE, WY 82072

SHARPE, SPENCER S; AMY E
657 N 14TH ST
LARAMIE, WY 82072

SPRING CREEK APARTMENTS LLC
ATTN: HARTMAN, RONALD L
1658 FOX RIDGE RD
LARAMIE, WY 82072

T & A ENTERPRISES, A WYO CORP
ATTN: LARKIN, JOHN
755 N 4TH ST
LARAMIE, WY 82072

THELEN PROPERTIES LLC
ATTN: THELEN, THOMAS J
360 N 2ND ST
LARAMIE, WY 82072

UNIVERSITY HOUSING, LLC, A WY LLC
2705 DOVER DR
LARAMIE, WY 82072

ZITEK, CLINT J; K MICHELLE
2053 N 9TH ST
LARAMIE, WY 82072

TRUSTEES OF THE UNIV OF WY
ATTN: REAL EST OPS, DEPT 3314
1000 E UNIVERSITY
LARAMIE, WY 82071

ABBOTT, WESTON J
319 FETTERMAN ST
LARAMIE, WY 82070

ALBANY COUNTY SCHOOL DIST #1
ATTN: SPRING CREEK ELEMENTARY
1948 GRAND AVE
LARAMIE, WY 82070

ANDREWS, LARRY J; CONNIE J
1416 PALMER DR
LARAMIE, WY 82070

BADER, EFFIE BELLFLOWER, CLINT
1332 SYMONS ST
LARAMIE, WY 82070

BAKER, JOSHUA JAMES FINKELSTEIN, ROSE MARY
1505 BARRATT ST
LARAMIE, WY 82070

BARTHEL, BRIAN E
903 BOSWELL DR
LARAMIE, WY 82070

BATEMAN, AARON J & APRIL ARNOLD
1405 BOSWELL DR
LARAMIE, WY 82070

BATZ, GILBERT J RVCBL TRUST & BATZ, MARY MARGARET RVCBL TRST
1521 PERSON ST
LARAMIE, WY 82070

BECK, JOSEPH F & SOPHIA L
1412 PERSON ST
LARAMIE, WY 82070

BECKER, TIMOTHY & BARBARA
602 RUSSELL ST
LARAMIE, WY 82070

BEHRENS, CARRIE
1926 THORNBURGH ST
LARAMIE, WY 82070

BEKKELA, JILL
1206 S 4TH ST
LARAMIE, WY 82070

BELLIVEAU, SEAN A M BULLERMAN, BONNIE L
1333 SYMONS ST
LARAMIE, WY 82070

BELZUNG, KRISTIN
1420 ORD ST
LARAMIE, WY 82070

BENNETT, CRYSTAL R M; DAVID T
1008 S 7TH ST
LARAMIE, WY 82070

BERNARD, JEFFREY ALAN
1006 S 4TH ST
LARAMIE, WY 82070

BISHOP, MICHAEL A
1003 S 10TH ST
LARAMIE, WY 82070

BLEVINS, KRISTIN E
1103 S 5TH ST
LARAMIE, WY 82070

BOARD OF COMMISSIONERS
525 GRAND AVE
LARAMIE, WY 82070

BOSCHEE, BECKY M & JUSTIN A
1506 ARNOLD ST
LARAMIE, WY 82070

BOSLER, HELEN ELIZABETH REV TRUST BOSLER, HELEN ELIZABETH TRUSTEE
412 S 9TH
LARAMIE, WY 82070

BOTELLO, BONNIE J
1928 S 13TH ST
LARAMIE, WY 82070

BOUSE, EDWARD J & AMY M
1219 S 4TH ST
LARAMIE, WY 82070

BOYLES, BRITTANY N
913 BOSWELL DR
LARAMIE, WY 82070

BRATTON, ROSEMARY
1517 PERSON ST
LARAMIE, WY 82070

BRAZELL, MICHAEL J
1506 ORD ST
LARAMIE, WY 82070

BRIDGMON, CHASE H
318 ORD ST
LARAMIE, WY 82070

BROST, SETH CHRISTIAN RANDALL-BROST, RYAN LEIGH
1416 FETTERMAN DR
LARAMIE, WY 82070

BROWN, SANDRA L & ALAN L
1516 ORD ST
LARAMIE, WY 82070

BRUBAKER, DELIAH K
900 ORD ST
LARAMIE, WY 82070

BRUMMOND, ARLYN M; LEONE F REV TRUST
BRUMMOND, ARLYN M; LEONE F TTEE
400 S 13TH
LARAMIE, WY 82070

BUDROW, WENDY E
809 RUSSELL ST
LARAMIE, WY 82070

BURMAN, KEITH R & ROSENBLAT, SEYMOUR & FLUTY, GALE F C/O BOMBAY LAND
501 BOSWELL
LARAMIE, WY 82070

BURROWS, ANDREA C
816 ORD ST
LARAMIE, WY 82070

CANDELARIA FAMILY TRUST VIALPANDO, RUTH P TRUSTEE
707 SPRING CREEK DR
LARAMIE, WY 82070

CARLISLE, CHARLIE & LANELLE
1814 STEELE
LARAMIE, WY 82070

CASPER, GINA M
713 SPRING CREEK DR
LARAMIE, WY 82070

CASTLE, PATTI LYNN
1303 FETTERMAN
LARAMIE, WY 82070

CHAPIN, ANDREW W & SUZANNE M
1409 PERSONS ST
LARAMIE, WY 82070

CHECA-GARCIA, IRENE
1014 S 4TH ST
LARAMIE, WY 82070

CHIU, LARRY M BAINER, SONYA Y
1413 SYMONS ST
LARAMIE, WY 82070

CHRISTIANSEN, THOMAS J; KAREN M
918 PALMER DR
LARAMIE, WY 82070

COCA, JOE GERALDO; MARY SOPHIE
1318 3RD ST
LARAMIE, WY 82070

COCA, JOSEPH N
1021 FETTERMAN DR
LARAMIE, WY 82070

CORNEHLSEN, RYAN T & SARAH J
1014 S 5TH ST
LARAMIE, WY 82070

CORNELIUS, JEROME C
1421 SYMONS ST
LARAMIE, WY 82070

CRAIT, JAMIE MCBRIDE, SHAWNA
909 FETTERMAN DR
LARAMIE, WY 82070

CRANNEY, DANIEL K; MARGARET M
1011 FETTERMAN DR
LARAMIE, WY 82070

CULVER, RON LEE; LADENE JUNE
1509 BARRATT ST
LARAMIE, WY 82070

CUPPS, CECIL Q & DORTHELLA J
1403 SANDERS DR
LARAMIE, WY 82070

DALE POLEDNA ENTERPRISES, INC
DBA: KNIGHT OIL CO
PO BOX 1188
LARAMIE, WY 82070

DALGARN, NYLA MARIE
1004 S 8TH ST
LARAMIE, WY 82070

DARCY FAMILY REVOCABLE TRUST DARCY, WILLIAM E; CONNIE K, TRUSTEES
514 E GRAND 174
LARAMIE, WY 82070

DAWSON, GREGORY SCOTT & DEBRA
1015 S 4TH
LARAMIE, WY 82070

DELANY, DIANE L & GILLESPIE,
HAMILTON R & OPAL A
614 FETTERMAN ST

LARAMIE, WY 82070

DELONG, HEATHER A & JAY B, JR
1426 PERSON ST
LARAMIE, WY 82070

DOOLEY, JAMES T; PIA I
1419 FETTERMAN DR
LARAMIE, WY 82070

DUNBAR, DAVID C; PHYLLIS H
1502 ARNOLD
LARAMIE, WY 82070

DURKEE, JAMES R; LEORA C FAM TR DURKEE,
JAMES R; LEORA C TTEES
718 S 23RD ST
LARAMIE, WY 82070

EARNSHAW, BEN
ATTN: BENJAMIN & AMANDA EARNSHAW
1201 S 3RD ST
LARAMIE, WY 82070

EIKE, SANDRA FARWELL REV TRUST EIKE,
SANDRA FARWELL TRUSTEE
7214 BLACK ELK TRAIL
LARAMIE, WY 82070

ENNIST, SEAN R; DEBRA A
913 FETTERMAN DR
LARAMIE, WY 82070

ERICKSON, LYNN M
910 ORD ST
LARAMIE, WY 82070

EWERT, NATHAN R
1907 AUTUMN CIR
LARAMIE, WY 82070

FALLGREN, TRAVIS B PERROTTI, MIKELL KELLI
1414 ORD ST
LARAMIE, WY 82070

FARLEY, LOU; BARBARA S
1820 HILLSIDE DR
LARAMIE, WY 82070

FAXON, SHAWN
1101 S 4TH ST
LARAMIE, WY 82070

FONDREN, VICTOR E & CAROL J
535 SPRING CREEK DR
LARAMIE, WY 82070

FORTMAN, BRIAN J & STEPHANIE A
1419 SANDERS DR
LARAMIE, WY 82070

FOURNIER, JENNICA M & CHARLES D
908 SANDERS DR
LARAMIE, WY 82070

FOUST, SAMUEL E
708 RUSSELL ST
LARAMIE, WY 82070

FRANK, PHILIP; DOROTHEA
611 FETTERMAN ST
LARAMIE, WY 82070

FRANK, WENDY D
1106 S 7TH ST
LARAMIE, WY 82070

FREESTYLE PROPERTIES, LLC, A WY LLC
1203 S 5TH ST
LARAMIE, WY 82070

GABRIEL, THOMAS E; KAREN L
21 HIDDEN SPRINGS RD
LARAMIE, WY 82070

GALLUS, DONALD J
1513 ARNOLD ST
LARAMIE, WY 82070

GAULKE, LELAND J
1109 FETTERMAN DR
LARAMIE, WY 82070

GLENN, NICHOLAS NEIL
1306 ORD ST
LARAMIE, WY 82070

GOLDIE BIRD HOLDINGS, LLC
1200 S 4TH ST
LARAMIE, WY 82070

GOLDMAN REVOCABLE TRUST GOLDMAN,
STEPHEN J & LINDA M, TRUSTEES
1228 FETTERMAN DR
LARAMIE, WY 82070

GOMEZ, FRANCISCO V & GLORIA L
1109 S 4TH
LARAMIE, WY 82070

GONZALES, LEVI E & DELORES A
1020 S 11TH ST
LARAMIE, WY 82070

GOOD SHEPERD EVANGELICAL
LUTHERAN CHURCH
1301 S 5TH ST
LARAMIE, WY 82070

GRAF, NICHOLAS E & CRYSTAL S
1913 RIVER CREEK CT
LARAMIE, WY 82070

GRAFF, JASON T; GRAFF, LINDA A; GRAFF, R
1020 S 3RD ST
LARAMIE, WY 82070

GRAHAM, GARY L
1216 S 4TH ST
LARAMIE, WY 82070

GREEN, JASON R & RACHEL N
1434 SYMONS ST
LARAMIE, WY 82070

HAENISCH, MICHAEL HAENISCH, AMBER;
HAENISCH, JERRY P
1509 BILL NYE AVE
LARAMIE, WY 82070

HAINES, COURTNEY A
1918 RIVER CREEK CT
LARAMIE, WY 82070

HANKS, RUTH E
1406 ORD ST
LARAMIE, WY 82070

HARDESTY, SHERMAN F & CONNIE J
115 RUSSELL
LARAMIE, WY 82070

HARDING, JACK F & CARMEN K
1908 AUTUMN CIR
LARAMIE, WY 82070

HARRISON, ALEXANDER M & JENNIFER K
1510 BILL NYE AVE
LARAMIE, WY 82070

HARTMAN, RODNEY R & PHYLLIS E
1222 FETTERMAN
LARAMIE, WY 82070

HAYNES, COLT D
1214 S 5TH
LARAMIE, WY 82070

HENNEMANN, JEANNE M
1016 S 4TH ST
LARAMIE, WY 82070

HENNINGSEN, JOHN CHARLES HALL,
LAURA EMBERE HENNINGSEN
1013 S 10TH
LARAMIE, WY 82070

HENSON, OLEN
1213 S 4TH ST
LARAMIE, WY 82070

HETLER, BRADLEY J & SHERYL L
1020 S 9TH ST
LARAMIE, WY 82070

HEUPEL, NEAL H & JENNIFER L
1406 PERSON ST
LARAMIE, WY 82070

HICKS, MARK C STEELE-HICKS, LORA M
1415 PERSON ST
LARAMIE, WY 82070

HIXSON, DORIS D
1003 FETTERMAN DR
LARAMIE, WY 82070

HOFFERBER, DONALD L
LIV TRUST HOFFERBER, BILLIE R LIV TRUST
HOFFERBER,
916 SANDERS
LARAMIE, WY 82070

HOGELIN FAMILY REVOCABLE TRUST
ATTN: HOGELIN, CHARLES A;SHERRI M TTEES
6617 BLACK ELK TRAIL
LARAMIE, WY 82070

HOGELIN, DENNY L
1310 FETTERMAN DR
LARAMIE, WY 82070

HOLEN, AMBER C
1508 PERSON
LARAMIE, WY 82070

HUGHES, MICHAEL JAY
519 FETTERMAN ST
LARAMIE, WY 82070

HUHNKE, BENJAMIN T & DARYL L
1606 SHETLAND DR
LARAMIE, WY 82070

HULIN, BRYAN
2444 OVERLAND DR
LARAMIE, WY 82070

HUZURBAZAR, SNEHALATA VASANT
1001 S 4TH ST
LARAMIE, WY 82070

ILLYA, JOSEPH EDWARD
1213 FETTERMAN DR
LARAMIE, WY 82070

JACK, JORDAN M
1417 SPRING CREEK
LARAMIE, WY 82070

JAMES, TREVOR & KATHRYN
1929 13TH ST
LARAMIE, WY 82070

JAVAID, FARRUKH FAREED, SAMEERA
923 PERSON ST
LARAMIE, WY 82070

JENKINS, ROBERT G & NATELLIE A
1009 S 8TH ST
LARAMIE, WY 82070

JOHNSON, GUY E; AMANDA S
1418 ARNOLD ST

LARAMIE, WY 82070

JOHNSON, JAMES R IANNUCCI, MARY ANN
1011 S 4TH ST
LARAMIE, WY 82070

JOHNSON, MICHAEL JAMES FISHER, REBECCA JEANNE
1502 BILL NYE
LARAMIE, WY 82070

JOHNSON, SUZANNE P
1118 FETTERMAN DR

LARAMIE, WY 82070

JONES, JENNIFER M
1823 S 13TH ST
LARAMIE, WY 82070

JORGENSON, NATHAN D
1510 SYMONS ST
LARAMIE, WY 82070

JUAREZ, JEROD; AMANDA RAE
2315 SKYVIEW LN
LARAMIE, WY 82070

KEINATH, DOUGLAS A & RICHELLE J
1320 ORD ST
LARAMIE, WY 82070

KELLER, LYLE D & KRISTY D
1113 FETTERMAN DR
LARAMIE, WY 82070

KENIK, DOUGLAS
1010 S 10TH ST
LARAMIE, WY 82070

KENT, RICHARD P LIVING TRUST KENT, RICHARD P TRUSTEE
915 S 10TH ST
LARAMIE, WY 82070

KIRKALDIE, JOHN R & NORMA J
1321 SPRING CREEK
LARAMIE, WY 82070

KJORSTAD, TYLER M
612 RUSSELL ST
LARAMIE, WY 82070

KLEMENTS, CONNIE J
1505 BILL NYE AVE
LARAMIE, WY 82070

KLUCKMAN, PATRICK & STACY J
918 BOSWELL DR
LARAMIE, WY 82070

KUHN, JOHNNY W & DEBRA M
603 FETTERMAN ST
LARAMIE, WY 82070

LABRUM, MICHAEL L & JACQUELINE R
1201 S 4TH ST
LARAMIE, WY 82070

LAFLEICHE, JIM L
1011 S 7TH ST
LARAMIE, WY 82070

LAMPERT, TREVOR
508 FETTERMAN ST
LARAMIE, WY 82070

LANNING, SHAWN G
1238 SYMONS ST
LARAMIE, WY 82070

LARAMIE INN, LLC, A WY LLC
ATTN: LARAMIE VALLEY INN/HEMMERT
1104 S 3RD ST
LARAMIE, WY 82070

LARSON, MARILYN VIRGINIA
1020 ORD ST
LARAMIE, WY 82070

LAUE, PHILLIP C
1318 SYMONS ST
LARAMIE, WY 82070

LAVANCHY, JENNIFER D
1922 S 11TH ST
LARAMIE, WY 82070

LEWIS, KYLE
1014 3RD ST
LARAMIE, WY 82070

LINDLEY, LINDA S
1427 SYMONS ST
LARAMIE, WY 82070

LIPE, CARL LYONS-LIPE, JULIANN
1013 S 13TH ST
LARAMIE, WY 82070

LUNDBERG, MATTHEW L; NEIKA R
GOULD, JARED A; JOELENE
617 FETTERMAN
LARAMIE, WY 82070

LUNDBERG, MATTHEW L; NEIKA R
617 FETTERMAN APT A
LARAMIE, WY 82070

M & W INVESTMENTS, LLC, A WY LLC ATTN: WALSH, JERRY T
4630 VISTA DR
LARAMIE, WY 82070

MACK, SRIPAIWAN TRINIKOM
1408 PALMER DR
LARAMIE, WY 82070

MANALO, MARILEE J
315 FETTERMAN ST
LARAMIE, WY 82070

MANNING, JULIE D WHITBECK, JANETTE
1920 AUTUMN CIR
LARAMIE, WY 82070

MARRON, G RICHARD
1501 BOSWELL CT
LARAMIE, WY 82070

MARRON, RICHARD G
1501 BOSWELL CT
LARAMIE, WY 82070

MARTIN, BRYAN A; KATRINA S
621 RUSSELL ST
LARAMIE, WY 82070

MARTIN, JESSE & WHITNEY J
1925 S 13TH ST
LARAMIE, WY 82070

MATHEWS, SARAH B
1114 FETTERMAN DR
LARAMIE, WY 82070

MAXWELL, JAMES D
1506 BILL NYE AVE
LARAMIE, WY 82070

MCCARTNEY, JANET E
1315 SPRING CREEK DR
LARAMIE, WY 82070

MCGINNIS, GEORGE M; JULIANNE
1407 FETTERMAN DR
LARAMIE, WY 82070

MCGRATH, JAMES E
1208 S 3RD
LARAMIE, WY 82070

MCGUIRE, WANDA L
4531 MOCKINGBIRD LN
LARAMIE, WY 82070

MCHENRY, BAILEY J
1004 S 7TH ST
LARAMIE, WY 82070

MCKINNEY, JEFFREY S & STEPHANIE M
1406 ARNOLD ST
LARAMIE, WY 82070

MCMICHEAL, KELLY G
1113 1/2 S 7TH ST
LARAMIE, WY 82070

MCMULLEN, WESLEY W & SHANNA M
1324 ORD ST
LARAMIE, WY 82070

MCMURDO, AMY S
1117 S 11TH ST
LARAMIE, WY 82070

MEARS, ALISON B LIV TRUST MEARS, ALISON B TRUSTEE
2068 POLK ST
LARAMIE, WY 82070

MEGGINSON, WILLIAM T
711 RUSSELL ST
LARAMIE, WY 82070

MELLO, ANNETTE R & THOMAS A
1012 S 7TH ST
LARAMIE, WY 82070

MERCIER, JANET H
1420 FETTERMAN DR
LARAMIE, WY 82070

MESA, MARY T
316 FETTERMAN ST
LARAMIE, WY 82070

MEYERS, ROBERT & CALEY
800 ORD ST
LARAMIE, WY 82070

MICHEL, CHRISTINE REED, CHRISTOPHER
1919 RIVER CREEK CT
LARAMIE, WY 82070

MILLER, LAURA GAY
1020 FETTERMAN DR
LARAMIE, WY 82070

MILLER, LINDA L
1020 S 5TH
LARAMIE, WY 82070

MILLION, GREGORY A & TAMI L
1513 BILL NYE
LARAMIE, WY 82070

MONDRAGON, RUDOLPH S; JUDITH
917 FETTERMAN DR
LARAMIE, WY 82070

MOODY, CHRISTOPHER G
1014 S 9TH ST
LARAMIE, WY 82070

MORA, MICHAEL L, SR
1505 SYMONS ST
LARAMIE, WY 82070

MORFELD, VERNA H
1519 PERSON ST
LARAMIE, WY 82070

MURPHY, CLAIRE B MCCOY, DAVID R
1008 FETTERMAN DR
LARAMIE, WY 82070

MURPHY, MORRIS M & CAROL E
311 RUSSELL ST
LARAMIE, WY 82070

NABORS, CHRISTOPHER R & CARLY A
1423 ARNOLD ST
LARAMIE, WY 82070

NAMIE, KELLY RAE
615 RUSSELL ST
LARAMIE, WY 82070

NECKLASON, ADAM
1305 S 9TH ST
LARAMIE, WY 82070

NELSON, DAVID J LIV TRUST NELSON, ANN J LIV TRUST NELSON, DAVID &
1215 S 5TH
LARAMIE, WY 82070

NELSON, JOAN W HARPER, RYAN ASHLEY
904 FETTERMAN DR
LARAMIE, WY 82070

NEWLIN, LENA M DYCK, NATHANIEL
1003 S 15TH ST
LARAMIE, WY 82070

NIELSEN, STEPHEN G
1110 FETTERMAN DR
LARAMIE, WY 82070

NYSSON, ELIZABETH M
1015 RUSSELL ST
LARAMIE, WY 82070

OHRMUND, JIMMY W
1202 S 3RD ST
LARAMIE, WY 82070

OLIVER, RUSSELL M; CHRISTY M
1422 SUBLETTE ST
LARAMIE, WY 82070

OLSON, JUSTIN; ERIN
1514 BILL NYE AVE
LARAMIE, WY 82070

PARKER, CHARLES M
1223 FETTERMAN
LARAMIE, WY 82070

PARNELL, THOMAS A JR; JUNE O
1151 HIDALGO DR
LARAMIE, WY 82070

PARSONS, EMILY B SMITH, JEFFREY A
1203 FETTERMAN DR
LARAMIE, WY 82070

PEREDIA, CAROLINA
523 FETTERMAN ST
LARAMIE, WY 82070

PIEPER, JOEL
901 BOSWELL DR
LARAMIE, WY 82070

PINSON, RYAN C & SARA G
1914 AUTUMN CIR
LARAMIE, WY 82070

PLACO, INC C/O HARDESTY, SHERMAN F & CONNIE J
115 RUSSELL
LARAMIE, WY 82070

POLEDNA, DALE ENTERPRISES
ATTN: DPE INC
PO BOX 1188
LARAMIE, WY 82070

POLEDNA, DALE ENTERPRISES, INC
PO BOX 1188
LARAMIE, WY 82070

PONCIANO, KRISTEEN E ALLEN, SIDNEY
1007 S 6TH ST
LARAMIE, WY 82070

PORTER, DONALD A, JR & M VIRGINIA
1014 S 13TH ST
LARAMIE, WY 82070

POTTHOFF, BRETT STEVEN & BRENDA MARIE
906 BOSWELL DR
LARAMIE, WY 82070

POWELL, JANE D TRUST
1501 SYMONS ST
LARAMIE, WY 82070

PRACHEIL, JAMES A & TIFFANY D
531 SPRING CREEK DR
LARAMIE, WY 82070

PRINCE, ELY
1123 FETTERMAN DR
LARAMIE, WY 82070

QUICK, TAD W; CONNIE
506 RUSSELL ST
LARAMIE, WY 82070

RAIMOND, GILBERTA
1206 S 11TH ST
LARAMIE, WY 82070

RANSOM, CHRIS R & CHRISSY L
919 BOSWELL DR
LARAMIE, WY 82070

REED, JANET A; WESLEY W
1117 FETTERMAN
LARAMIE, WY 82070

REED, SHAWN J; TIA
606 RUSSELL ST
LARAMIE, WY 82070

REESE, ASHLIE
1221 SPRING CREEK
LARAMIE, WY 82070

REYNDERS, CINDY R
1004 S 5TH
LARAMIE, WY 82070

RHOADES, JONATHAN D
1327 SYMONS ST
LARAMIE, WY 82070

RICCA, ANTHONY B
1001 S 7TH ST
LARAMIE, WY 82070

RICHARDS, ALEC RICHARDS, LAWRENCE DAVID
1316 FETTERMAN DR
LARAMIE, WY 82070

RIEGEL, GARY LIVING TRUST RIEGEL, GARY &
GRACE, TRUSTEES
1871 WASHINGTON ST
LARAMIE, WY 82070

ROBERTSON, EMILY I
1410 FETTERMAN DR
LARAMIE, WY 82070

ROEPKE, MATTHEW
1411 SPRING CREEK
LARAMIE, WY 82070

ROGERS, CARL A; DEBRA L
623 SPRING CREEK DR
LARAMIE, WY 82070

ROSE, DEAN WILLIAM & SARAH JAYNE
1913 AUTUMN CIR
LARAMIE, WY 82070

ROSE, JULIE
916 FETTERMAN DR
LARAMIE, WY 82070

ROWLES, JAMES LEO & CAROL LEE
1018 S 3RD
LARAMIE, WY 82070

SALMONS, DESDAMONA LINDA MIDGETT,
AARON THOMAS
916 ORD ST
LARAMIE, WY 82070

SANCHEZ, EUGENE S
1118 S 11TH ST
LARAMIE, WY 82070

SANCHEZ, PATRICK C
1413 SANDERS DR
LARAMIE, WY 82070

SANCHEZ, TOMMY & SYLVIA A
1424 PALMER DR
LARAMIE, WY 82070

SANDERS, MARK A & CHRISTINA T
1407 SPRING CREEK
LARAMIE, WY 82070

SAUER, MARK G
1007 S 9TH ST
LARAMIE, WY 82070

SAULCY, SARA J LIVING TRUST SAULCY,
SARA J, TRUSTEE
1405 ARNOLD ST
LARAMIE, WY 82070

SCARPELLI, GUY WILLIAM
TRUST SCARPELLI, GUY TTEE
1407 PALMER DR
LARAMIE, WY 82070

SCHAEFER, MICHAEL R; DIANNA L
1501 ARNOLD
LARAMIE, WY 82070

SCHENKER, PENNY L
1418 SYMONS ST
LARAMIE, WY 82070

SCHEPELER, WILLIAM T, V, JAMIE A
1501 BARRATT
LARAMIE, WY 82070

SCHLUMP, JAMES ROGER & JEAN M
1117 S 5TH ST
LARAMIE, WY 82070

SCHLUMP, ROGER; JEAN M
1117 S 5TH ST
LARAMIE, WY 82070

SHANNON, RICK A
1011 S 3RD ST
LARAMIE, WY 82070

SHARPS, SEYMOUR L; ELLEN S
1016 FETTERMAN DR
LARAMIE, WY 82070

SHAW, MICHAEL J
1408 SYMONS ST
LARAMIE, WY 82070

SHEARIN, A TERRY LIVING TRUST SHEARIN, PATRICIA LIVING TRUST
513 FETTERMAN ST
LARAMIE, WY 82070

SHELTON, DIANA W LIV TRUST OBRIEN, CATHERINE E C LIV TRUST
269 MILLBROOK RD
LARAMIE, WY 82070

SHEPHERD, RUTHANN SHEPARD, MARK
1513 SPRING CREEK DR
LARAMIE, WY 82070

SHORTCUT, LLC, A WY LLC ATTN: ROBERTS, STEPHEN L
1302 BILL NYE AVE
LARAMIE, WY 82070

SIMS, BENJAMIN L & LESLIE A
1402 SYMONS ST
LARAMIE, WY 82070

SKEEN, JACOB & KASSANDRA T
603 RUSSELL ST
LARAMIE, WY 82070

SLONAKER, TIMOTHY R
312 ORD ST
LARAMIE, WY 82070

SMITH, ALICE G
963 HWY #230
LARAMIE, WY 82070

SMITH, AMANDA J
1410 ORD ST
LARAMIE, WY 82070

SMITH, CLARENCE E; ALICE G
963 HWY 230
LARAMIE, WY 82070

SMITH, EUGENE P III
LIV TRUST SMITH, EUGENE P III TRUSTEE
1101 S 8TH ST
LARAMIE, WY 82070

SMITH, JORDAN D & JESSICA
1926 RIVER CREEK CT
LARAMIE, WY 82070

SMITH, LUCAS B; KARLI R
1514 SYMONS ST
LARAMIE, WY 82070

SMITH, REBEKAH S
1018 S 8TH ST APT A
LARAMIE, WY 82070

SMITH, SCOTT M MALVOISIN, SONJA I
1421 BOSWELL DR
LARAMIE, WY 82070

SOLATORIO, ANDREA C & AGUSTIN
1429 ARNOLD ST
LARAMIE, WY 82070

SONZOGNI, BRIEN L & EMILY J
1407 SANDERS DR
LARAMIE, WY 82070

STEVENSON, DUDLEY E & CATHERINE L
610 FETTERMAN ST
LARAMIE, WY 82070

STEWART, JUSTIN D HETTGAR, MARGARET E
1016 S 7TH ST
LARAMIE, WY 82070

STILL, JASON W S; STILL, LLOYD E STILL, LINDA K
920 FETTERMAN DR
LARAMIE, WY 82070

STINSON, BETTY H, REVOCABLE TRUST STINSON, BETTY H TRUSTEE
1074 ALTA VISTA DR
LARAMIE, WY 82070

STINSON, BETTY H, REVOCABLE TRUST STINSON, BETTY H TRUSTEE
1074 ALTA VISTA DRIVE
LARAMIE, WY 82070

STROMSKI, MICHAEL E; SHARON A
1419 PALMER DR
LARAMIE, WY 82070

SULLIVAN, SUSAN K
1405 SYMONS ST
LARAMIE, WY 82070

SUMMIT PROPERTIES
205 FETTERMAN ST
LARAMIE, WY 82070

SWECKARD, JON JAMES
4315 WESTERN SKIES RD
LARAMIE, WY 82070

SWECKARD, LUCAS JAMES
10 TOPAZ LN
LARAMIE, WY 82070

TAYLOR, GREGORY & JOLENE
915 SANDERS
LARAMIE, WY 82070

THOMAS, DANIEL JOHNSON, RAE
1204 FETTERMAN DR
LARAMIE, WY 82070

THOMAS, JOLEAN
1123 S 7TH ST
LARAMIE, WY 82070

THOMASON, CHRISTOPHER L & CRYSTAL N
1011 S 5TH ST
LARAMIE, WY 82070

THOMPSON, AARON A & BRITTANY L
1014 S 10TH ST
LARAMIE, WY 82070

THOMPSON, DERRICK R; KAYLEE EDNA
1418 PERSON ST
LARAMIE, WY 82070

THOMPSON, EDNA L TROST, DUANE R
1210 FETTERMAN
LARAMIE, WY 82070

THOMPSON, JASON
921 FETTERMAN DR
LARAMIE, WY 82070

THOMSEN, CHARLES I & DEBRA L
1403 SPRING CREEK DR
LARAMIE, WY 82070

THROOP, LAUREN E
1517 SPRING CREEK DR
LARAMIE, WY 82070

THRUSH, GREG L; MARIAN D
510 ORD ST
LARAMIE, WY 82070

TRAVSKY, DANIEL SAMUEL
1501 BILL NYE AVE
LARAMIE, WY 82070

TRIPHYTO, LLC, A WY LLC
ATTN: VINCENT, KIM
214 2ND ST
LARAMIE, WY 82070

TROGDEN, GENEVIEVE
1006 8TH ST
LARAMIE, WY 82070

VIALPANDO, JAMES R; LARAMIE S
1403 FETTERMAN DR
LARAMIE, WY 82070

VICCHY, ANNA M REVOCABLE TRUST VICCHY, ANNA M TTEE
315 S 23RD 1
LARAMIE, WY 82070

VICKREY, JASON C
910 PALMER DR
LARAMIE, WY 82070

VIGIL, MARCIA A
1320 FETTERMAN DR
LARAMIE, WY 82070

VILLAS, INC A WYO CORP
ATTN: VILLASENOR, PONCIANO
513 BOSWELL
LARAMIE, WY 82070

VILLASENOR, PONCIANO
1425 SUBLETTE
LARAMIE, WY 82070

VITT, DENISE JEAN CROSBY
715 SPRING CREEK DRIVE
LARAMIE, WY 82070

WAGGENER, ROBERT W; LESLIE C
1003 S 5TH
LARAMIE, WY 82070

WAHLGREN, DANIEL D; SANDRA A
4527 ORIOLE LN
LARAMIE, WY 82070

WALCK, CYNTHIA A
1420 SANDERS DR
LARAMIE, WY 82070

WALSH, JERRY TRAVIS & AIMEE N
4630 VISTA DR
LARAMIE, WY 82070

WALTERS, RICK; SHARON KAY
522 RUSSELL ST
LARAMIE, WY 82070

WARM LLC
413 FETTERMAN ST
LARAMIE, WY 82070

WATKINS, KEVIN ALVIN & ANDREA DAWN
1509 SYMONS ST
LARAMIE, WY 82070

WEITZEL, ERIC C & CARREE L
600 ORD ST
LARAMIE, WY 82070

WEITZEL, TRENTON J
1010 S 3RD ST
LARAMIE, WY 82070

WELCH, NOEL & ERIN S
414 RUSSELL ST
LARAMIE, WY 82070

WESTBROOK, JONI LIV TRUST WESTERBROOK, JONI & TAD , TRUSTEES
1007 S 3RD ST
LARAMIE, WY 82070

WESTBROOK, TAD LIV TRUST WESTBROOK, JONI LIV TRUST
1007 S 3RD ST
LARAMIE, WY 82070

WHILE, TODD J & CHARLOTTE H
1009 S 10TH ST
LARAMIE, WY 82070

WHITBECK, ROBERT E & PAMELA M
1433 SYMONS ST
LARAMIE, WY 82070

WHITE, JACOB A & LEAH S
512 FETTERMAN ST
LARAMIE, WY 82070

WILKISON, AMANDA LYNN; BLACKMON, CHRISTOPHER LEE
1326 SYMONS ST
LARAMIE, WY 82070

WILSON, ROBERT A
1521 SPRING CREEK DR
LARAMIE, WY 82070

WINDER, RICHARD G & PHYLLIS M
909 PALMER DR
LARAMIE, WY 82070

WIP, LLC
216 GRAND AVE
LARAMIE, WY 82070

WISEMAN, SHAWN M; BRYONY S
1225 5TH ST
LARAMIE, WY 82070

WONG, SIN KOK
2518 S 18TH ST
LARAMIE, WY 82070

WOODHOUSE, ANDREW J & VIRGINIA B
1315 FETTERMAN DR
LARAMIE, WY 82070

WORKMAN, JANICE
406 ORD ST
LARAMIE, WY 82070

WORTHINGTON, MICHAEL WARREN
522 FETTERMAN ST
LARAMIE, WY 82070

WRHEL, BRIAN M
1505 ARNOLD ST
LARAMIE, WY 82070

WYCKOFF, TEALE B
1002 S 5TH
LARAMIE, WY 82070

YU, LI YEUNG, MAN CHUNG
1522 BOSWELL CT
LARAMIE, WY 82070

ZAMORA, PAMELA K
1414 SANDERS DR
LARAMIE, WY 82070

ZHENG, YUAN XU, HAIYING
1403 PERSON ST
LARAMIE, WY 82070

ZIBBON, CORINNE ANN
1017 FETTERMAN DR
LARAMIE, WY 82070

BREYFOGLE, WILLIAM W
PO BOX 22
CENTENNIAL, WY 82055

JAMISON, CRAIG & APRIL
PO BOX 304
CENTENNIAL, WY 82055

B & L GROTT, LLC, A WY LLC
7217 HAWTHORNE
CHEYENNE, WY 82009

GROTT FAMILY TRUST GROTT, BYRON L & LAURA J, TRUSTEES
7217 HAWTHORNE DR
CHEYENNE, WY 82009

HAMM, THOMAS F II
8711 BOZEMAN
CHEYENNE, WY 82009

HATTEL, LARRY J & DIANE E
3700 E FOUR MILE RD
CHEYENNE, WY 82009

HOUSING AUTHORITY OF THE CITY OF CHEYENNE
3304 SHERIDAN AVE
CHEYENNE, WY 82009

JOHNSON, THOMAS W & CAROLYN S
7702 HAWTHORNE DR
CHEYENNE, WY 82009

MURRAY, GANELL M
REV TRUST MURRAY, GANELL M TRUSTEE
6345 PRAIRIE HILLS DR
CHEYENNE, WY 82009

MWA, LLC, A WY LLC
916 HEMLOCK
CHEYENNE, WY 82009

POWELL, SAMUEL D & LAURA J
7216 HAWTHORNE
CHEYENNE, WY 82009

ROBINSON, KENNETH D REVOCABLE TRUST
ROBINSON, KENNETH D, TRUSTEE
6816 BRAVE CT
CHEYENNE, WY 82009

RV REAL ESTATE PROPERTIES, LLC, A WY LLC
928 BRITTANY
CHEYENNE, WY 82009

TAYLOR, DOUGLAS LYLE, SHERRIE
1808 ROAD 217
CHEYENNE, WY 82009

SPRING CREEK INVESTMENTS LLC
PO BOX 2386
CHEYENNE, WY 82003

SPRING CREEK STORAGE, LLC, A WY LLC
ATTN: LOPEZ, RONALD J
6700 PEACE POINTE
CHEYENNE, WY 82003

COLLINS, JIM MARONEY, COLLEEN
902 CLEVELAND AVE
CHEYENNE, WY 82001

FANELLI, RICHARD; GAIL
3100 SILVERGATE CT
CHEYENNE, WY 82001

FINCH PROPERTIES, LLC, A WY LLC
3418 E PERSHING
CHEYENNE, WY 82001

WOODS, ROBERT E; REBECCA L
5160 SYCAMORE RD
CHEYENNE, WY 82001

GIEHM, NOEL & JANET LIVING TRUST GIEHM,
NOEL R & JANET K, TRUSTEE
7045 ROYAL COUNTRY DOWN
WINDSOR, CO 80550

STOWERS, JON; CONNIE
PO BOX 435
MASONVILLE, CO 80541

JONES, DANIEL S & ANDREA K JONES, KELSEY D
2900 MOFFAT AVE
LOVELAND, CO 80538

GOPPERT, STEPHEN B & SUSAN J
5275 LIGHTHOUSE POINT CT
LOVELAND, CO 80537

JOHNSON, GRANT D; TANA J
4328 WHIPPENY DR
FORT COLLINS, CO 80526

ANDERSON, VICTORIA J
2613 STANFORD RD #29
FORT COLLINS, CO 80525

OLSON, LOIS M
1325 LEAWOOD ST
FORT COLLINS, CO 80525

HOUCK, DANIEL E; JANE H
614 MATHEWS CR
ERIE, CO 80516

EDWARDS, CAROL J & JOSEPH E, VII
PO BOX 905
WALDEN, CO 80480

TRESCH, PHILLIP CHARTRAND-TRESCH, NICOLE
104 C MORNINGSTAR CIRCLE
FRISCO, CO 80443

LARAMIE LODGING LLC, A CO LLC
ATTN: RAHMANI, BRUCE
10 E 120TH AVE
NORTHGLENN, CO 80233

JACOBSON, ERIC D
10311 KENNETH DR
PARKER, CO 80134

FALL CREEK PROPERTIES, LLC, A CO LLC
ATTN: COOLEY, MIKE
4579 BROADVIEW CT
CASTLE ROCK, CO 80109

SAGE, KESA LORAINE
8515 CARR CT
ARVADA, CO 80005

JAS MANAGEMENT, LLC
ATTN: STRICKLAND, JERE A
13463 W 62ND PL
ARVADA, CO 80004

SOBEL, FAMILY REV TRUST SOBEL,
JORDAN P & MELINDA J TRUSTEES
5959 S BIRMINGHAM
TULSA, OK 74105

ROLAND, ALAN J & ASHLEY C
455 CR 65
HEMINGFORD, NE 69348

CALLAHAN, STEPHEN A; CYNTHIA B
241 TALL PINE RD
CRAWFORD, NE 69339

CULLEN, PAMELA JOELLA; PATRICK
4609 E NYBLOM RD
NORTH PLATTE, NE 69101

REISS, CHRISTOPHER J
568 CANNON DR
GENEVA, IL 60134

LN REAL ESTATE LLC, A WA LLC
ATTN: WILDT, JEFF PROP MGR
PO BOX 5550
WINONA, MN 55987

YAO, CHAOQUN ZENG, LI
10120 HICKORY LN
URBANDALE, IA 50322

GRUVER, JACOB P
317 N VICTORIA PARK RD
FORT LAUDERDALE, FL 33301

BATTLE, VINCENT M REV TRUST BATTLE,
VINCENT M, TRUSTEE
2227 CORAL VALLEY ROAD
CHARLOTTE, NC 28214

KEEFAUVER, LINDA
22081 PARKS MILL RD
ABINGDON, VA 24211

KENNEDY, CHRIS J
1361 F ST NE
WASHINGTON, DC 20002

PUEBLITZ, GEORGE
2416 MENOHER BLVD
JOHNSTOWN, PA 15905

SEDAR, WARREN THOMAS & CHARLENE D
PO BOX 997
CHRISTIANSTED, VI 821

Bill Nye Avenue Corridor Study

PUBLIC MEETING NO. 1 October 21, 2015 from 5:00 p.m. to 7:00 p.m.,

Presentation at 5:15 p.m. Albany County Library 310 S 8th St, RM# Laramie, WY 82070

LIST OF ATTENDEES

NAME	ADDRESS	E-MAIL	PHONE
Jeff Purdy	2617 E Lincolnway Cheyenne	Jeffrey.Purdy@dot.gov	
Kaye Willis	174 Cortrell Rd.	Knbob@me.com	
Gary Espeland	102 So 5th	Espeland Realty@aol.com	
Pouciano Villaseñor	513 Boswell Dr.	—	307) 721-0167
Margaret Brown	1055 Bonita	margaretbrown@brennan.net	
Nick + Crystal Graf	1913 River Creek ct.	n.cograf@outlook.com	(307) 755-2501
Sam Shuler	1305 Bill Nye		
NATHAN EWERT	1907 AUTUMN CIRCLE	newert@trihydro.com	8480-309-1400

Bill Nye Avenue Corridor Study

PUBLIC MEETING NO. 1 October 21, 2015 from 5:00 p.m. to 7:00 p.m.,

Presentation at 5:15 p.m. Albany County Library 310 S 8th St, RM# Laramie, WY 82070

LIST OF ATTENDEES

NAME	ADDRESS	E-MAIL	PHONE
[illegible]	1117 S. 5th St	jeanielaramie@aol.com	
Jim Stephen (Spring Creek Inst)	234 Palm Springs		
Jason Green	1434 Symons St	jr0898@yahoo.com	
Bob Southard	501 Garfield		
Joel Funk	318 S 15th	joelf@laramieboomerang.com	7553320
Lindy Miller	1020 So. 5th St	lindy.miller@live.com	745-4719
Debi O'Donnell	POB 1692	Vollybmom@aol.com	721-2043
Klaus Hansen	710 Gerald Pl	klaushansen@yahoo.com	745-4482
Diana Schwede	1011 S. 15th St	diana.schwede@gmail.com	440-3280
Steve Roberts	1302 Bill Nye		742-0345

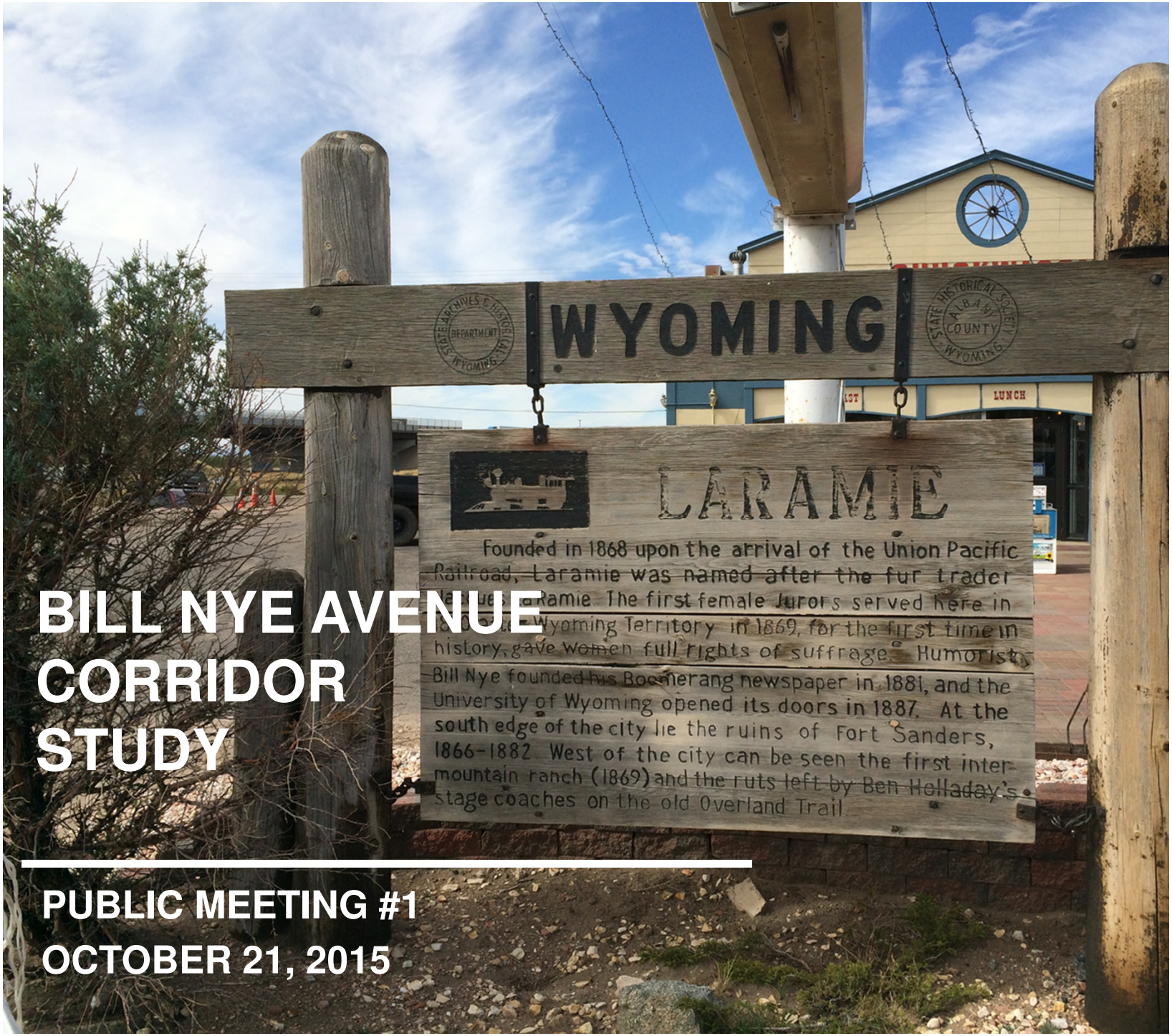
Bill Nye Avenue Corridor Study

PUBLIC MEETING NO. 1 October 21, 2015 from 5:00 p.m. to 7:00 p.m.,

Presentation at 5:15 p.m. Albany County Library 310 S 8th St, RM# Laramie, WY 82070

LIST OF ATTENDEES

NAME	ADDRESS	E-MAIL	PHONE
Carbon County Bird	1718 Pearson PO Box 1363	Dun Dot DIRD	755-7078
Nicole Swartz	1011 S. 5th	NSwartz@gmail.com	460-3280
Wade Roberts	P.O. Box 657	W Roberts 67 @ Gmail.com	307-760-1743
Doug Keinath	1320 Ord St	dgkrth@yahoo.com	307-760-4201
John Kirkbride	1304 Spring Creek Dr		307-761-0053



BILL NYE AVENUE CORRIDOR STUDY

PUBLIC MEETING #1

OCTOBER 21, 2015

LARAMIE

WEST Inc.

STS

ENGINEERING
PLANNING
SURVEYING
PC

Agenda

- Introductions
- Study Area
- Goals and Objectives
- Project Schedule
- Identified Constraints
- Proposed Roadway Typical Section
- Proposed Conceptual Alternatives
- Adjourn to Workshop Areas

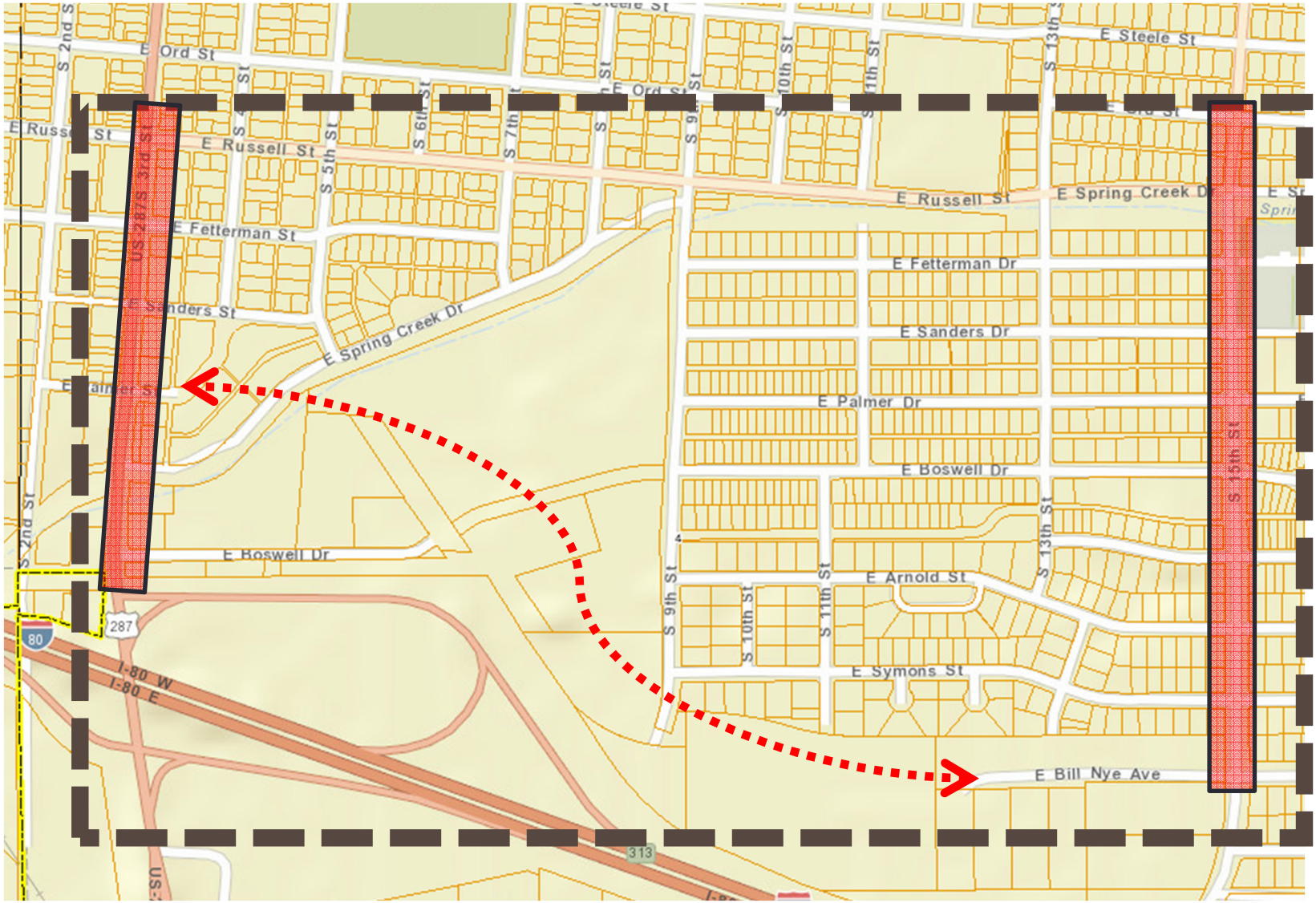
Introductions

Tom Cobb, P.E.
Project Manager

Brad Emmons, A.I.C.P.
Principal-in-charge
Planning

Jake Wilson, E.I.T.
Engineer

Study Area


E Ord St
E Steele St
E Russell St
E Spring Creek Dr
E Fetterman St
E Fetterman Dr
E Sanders St
E Sanders Dr
E Palmer Dr
E Boswell Dr
E Arnold St
E Symons St
E Bill Nye Ave
S 2nd St
S 3rd St
S 5th St
S 6th St
S 7th St
S 9th St
S 10th St
S 11th St
S 13th St
S 15th St
US 287
I-80 W
I-80 E
80
287
313

Purpose, Objective, and Goals

- **Purpose**
  - Create a comprehensive and practical planning document that guides and promotes future development of the corridor and surrounding area.
- **Objective**
  - Develop a realistic preferred alignment for Bill Nye Avenue between 3rd Street and 15th Street.
- **Goals**
  - Promotes safety
  - Minimizes long term maintenance
  - Sensitive to current function and property owners
  - Serves all transportation users (bicycles, pedestrians, freight, passenger cars, buses, etc.)
  - Facilitates inner City connectivity
  - Encourages economic development

Project Schedule

Activity	Tentative Schedule
Notice to proceed and Kick-off Meeting	Begin Project, June 9, 2015
Adjacent Stakeholder Meeting(s)	July 2, 2015
Meeting w/ FHWA	July 9, 2015
Develop Preliminary Alternatives	July – August, 2015
Steering Committee Meetings	August 24; September 22; and October 19, 2015; **November, 2015; January, 2016.**
First Public Meeting	**October 21, 2015**
Refine Alternatives	November, 2015
Complete Draft Plan	**December, 2015**
Submit Draft Plan City of Laramie	**January, 2016**
Revise Draft Plan	**February, 2016**
Presentation to Governing Body	**March, 2016**

Identified Constraints

- **Physical Constraints**
  - **Existing Utilities**
  - **Structures**
  - **Spring Creek**
- **Adjacent Developments**
- **Corridor Safety**

Existing Utilities - Palmer Street West of 3rd (looking west)

Structures – Bridge at 9th and Russell (looking south)

Structures – Bridge at 3rd and Spring Creek (looking south)

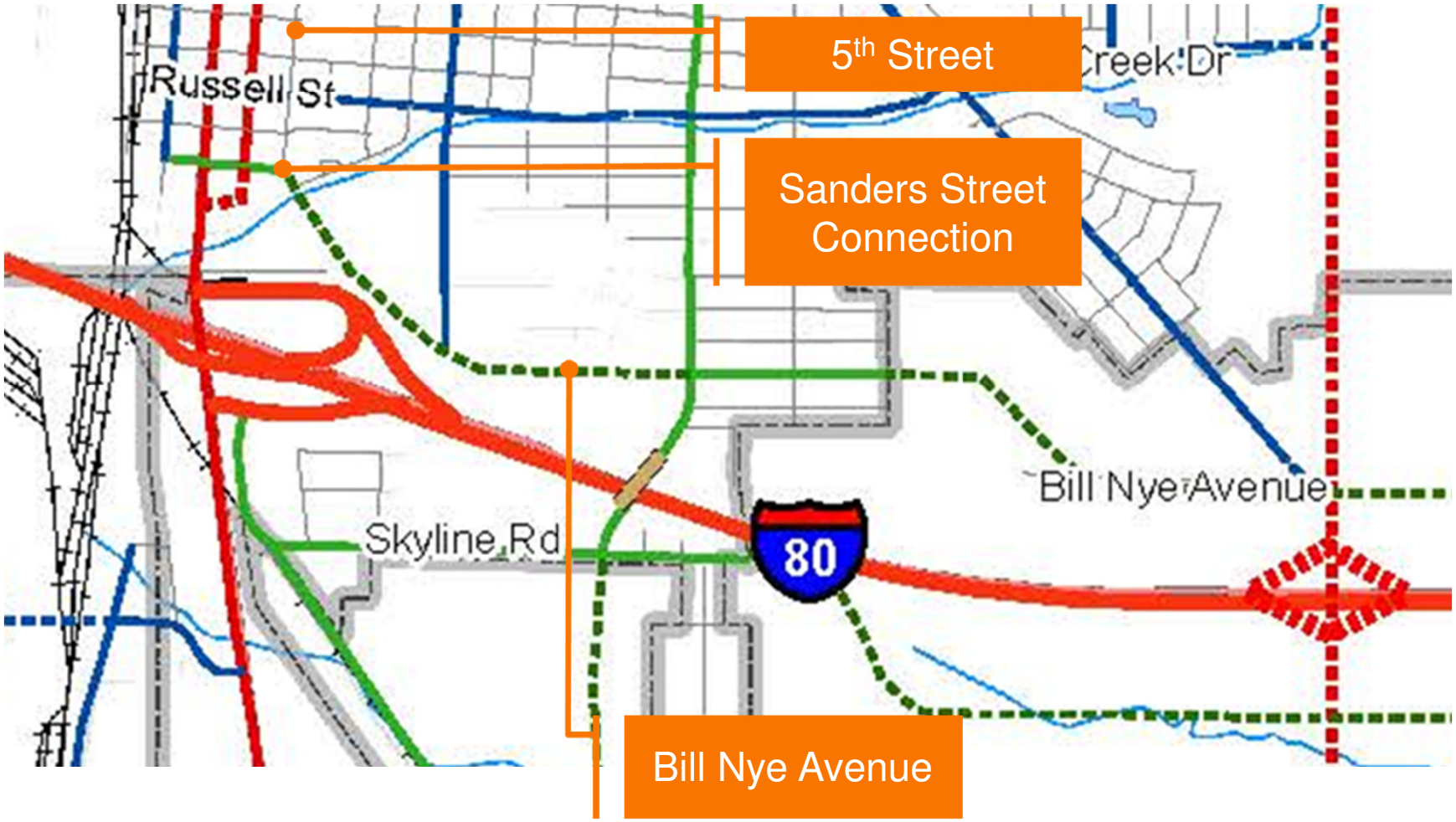
Spring Creek - East of 3rd (looking east)

Adjacent Development – 5th Street at Sanders (looking north)

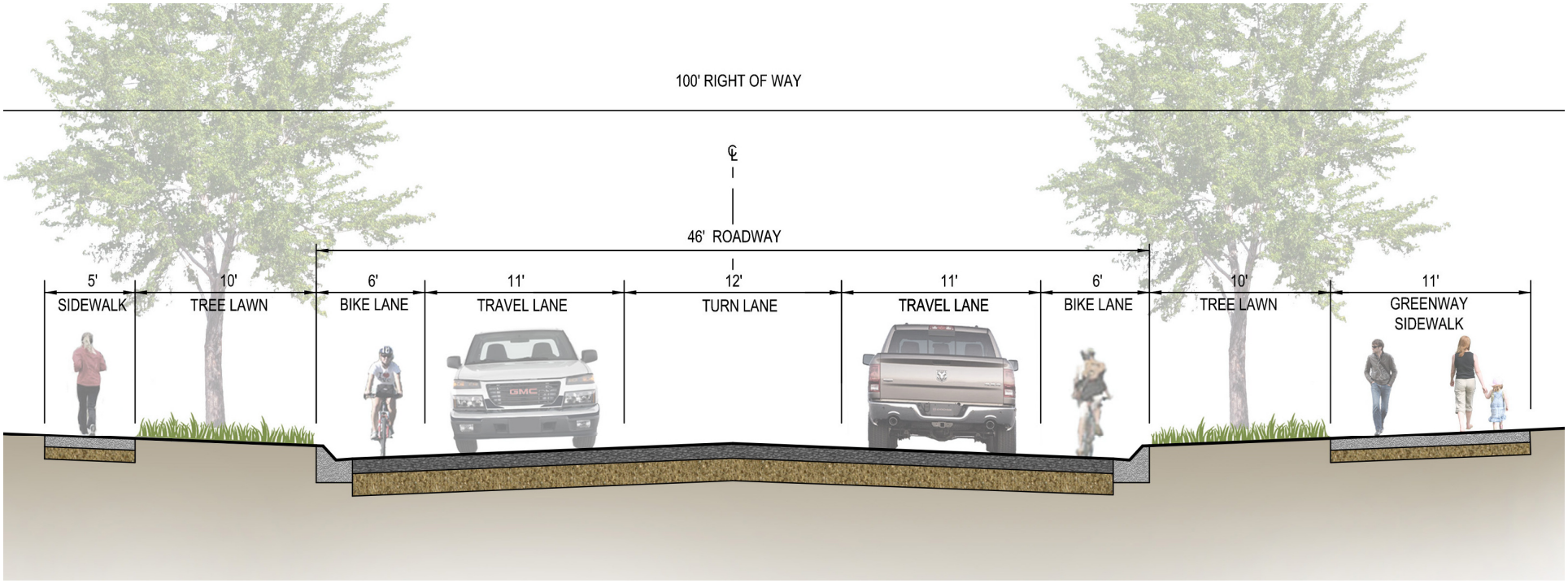
Corridor Safety - 3rd and Boswell (Proximity of Access to Intersection)

Corridor Safety - 3rd and Boswell, I-80 On/Off Ramps – Confusion created by spacing of ramps and Boswell Drive

Laramie Comprehensive Plan



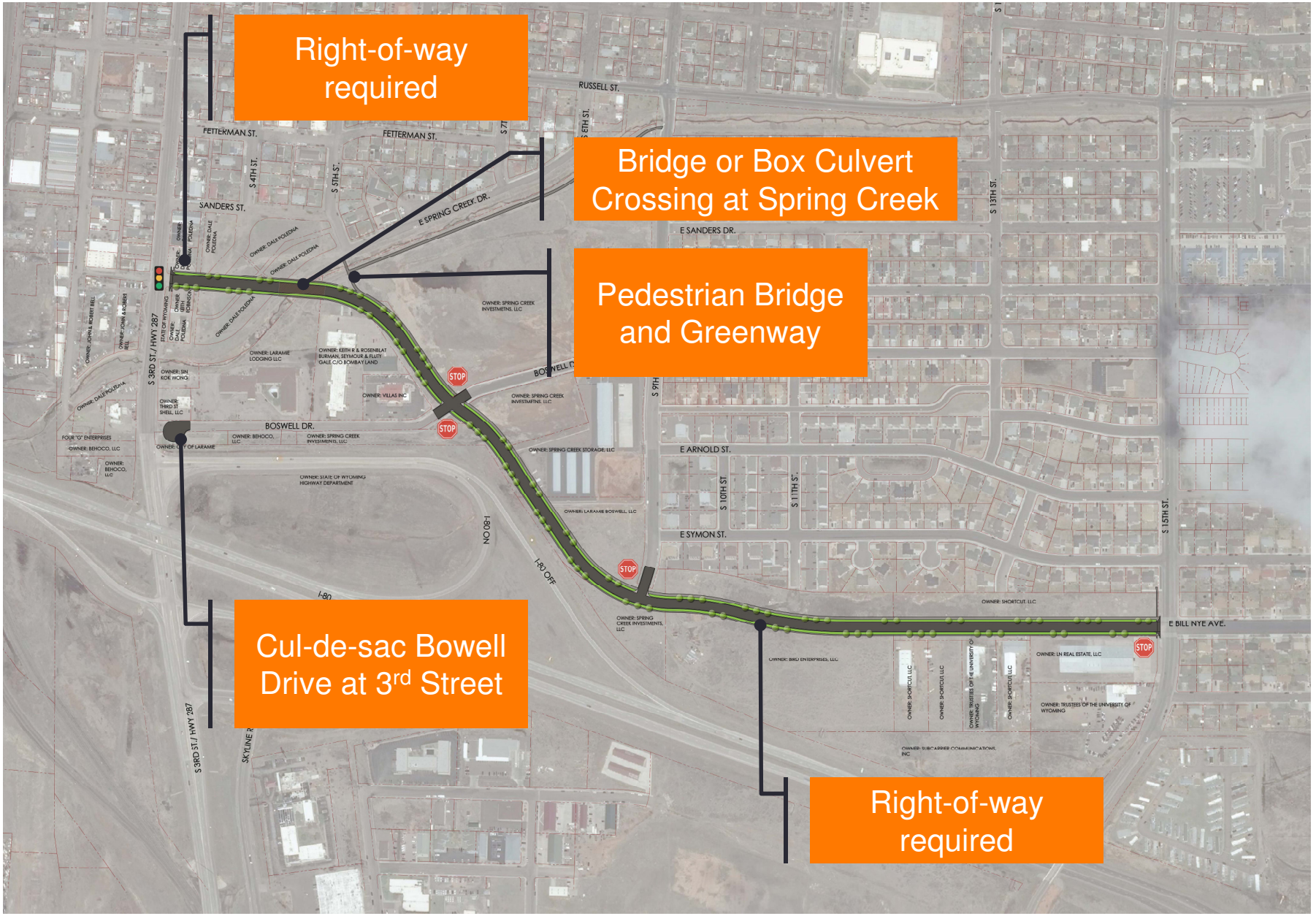
Conceptual Typical Section



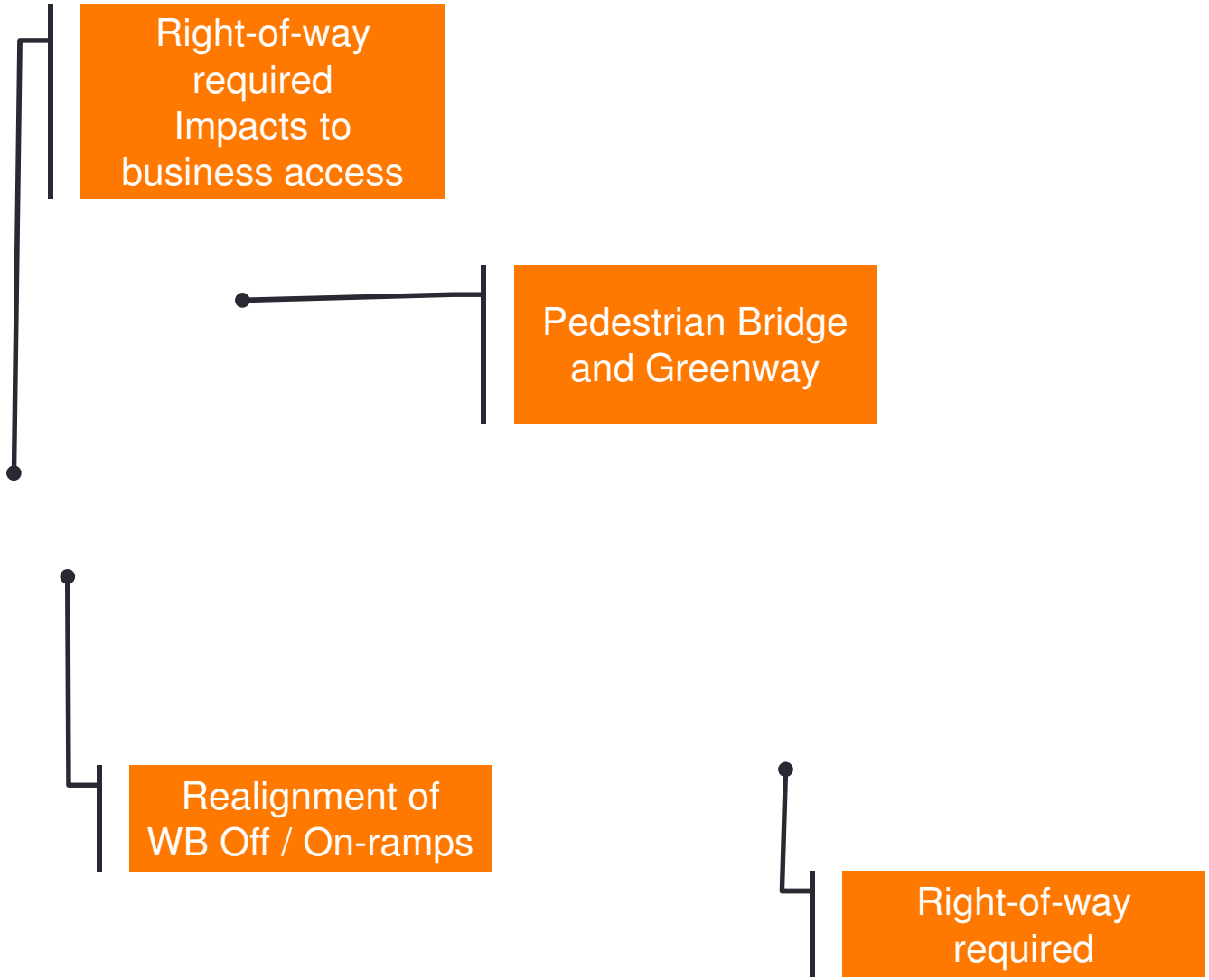
Do Nothing – Utilize 15th Street

Revised Bill Nye Realignment

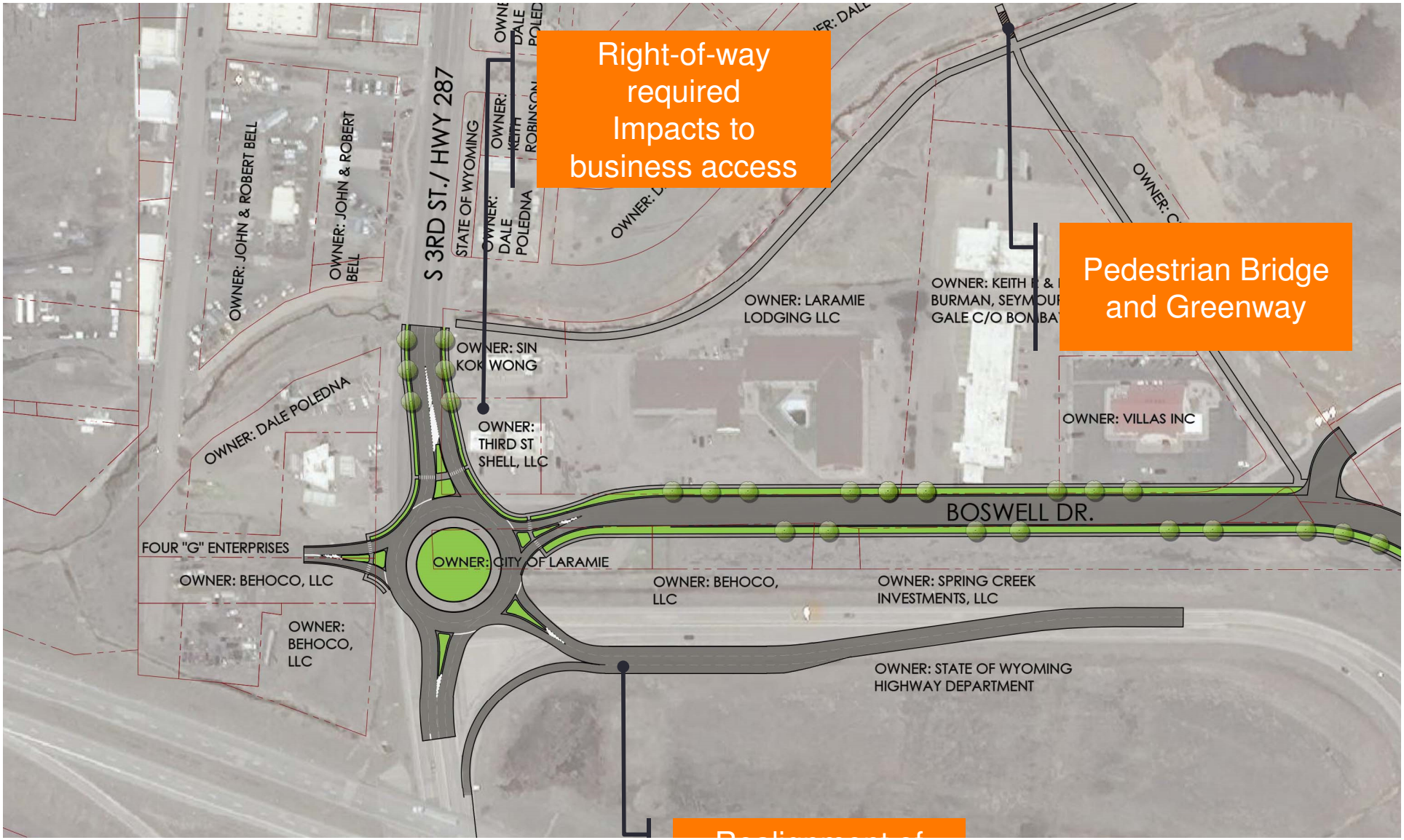
E. Palmer Drive w/ Cul-de-sac Boswell



RAB at 3rd/ Boswell/ I-80 WB Ramps

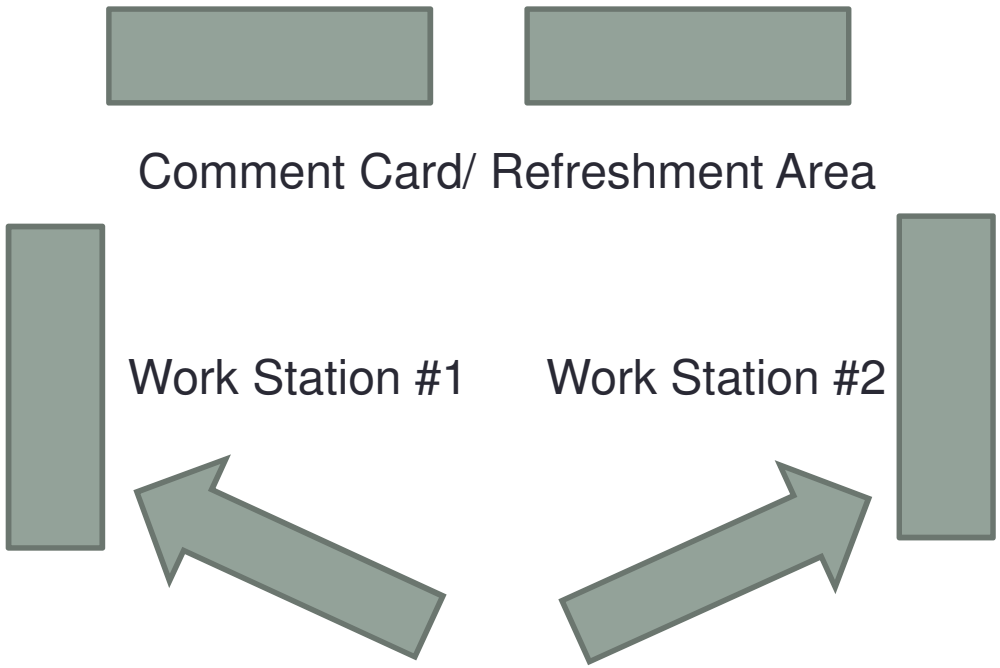


RAB at 3rd/ Boswell/ I-80 WB Ramps



Work Station Areas

- Two Identical Work Stations
  - **Tables**
    - Aerial photo with street views
- Comment Card/ Refreshment Area



Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

- [x] Home owner in the area
- [ ] Renter in the area
- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [ ] Potential Route user
- [ ] Other _____ (Please specify)

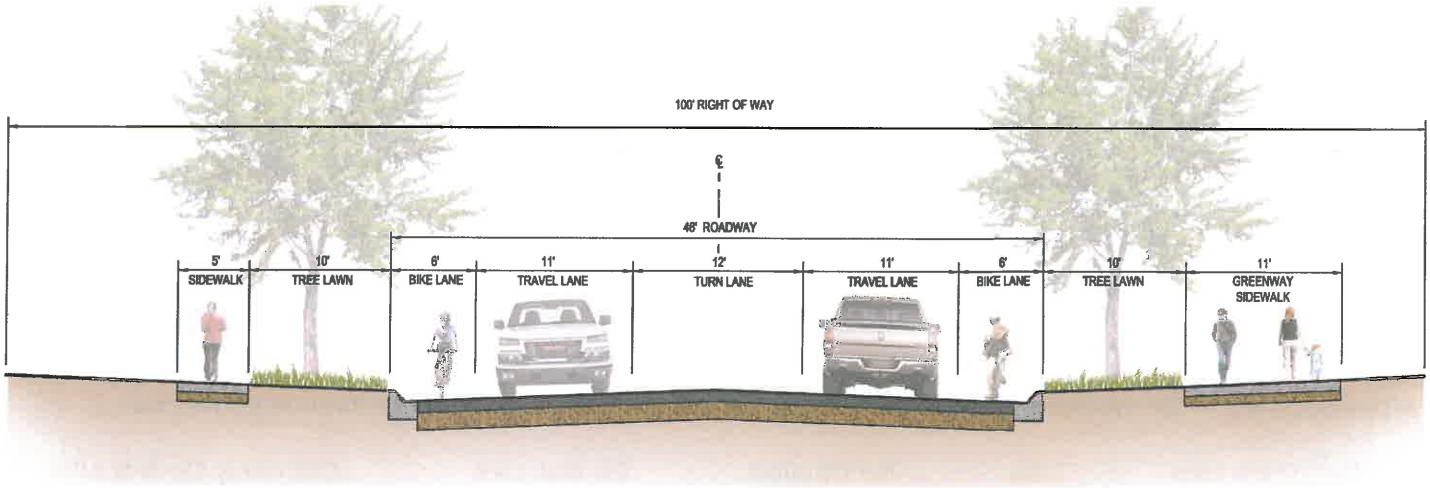
Please give your contact information in order to keep you informed (Optional)?

Name: Crystal Graf

Address: 1913 River Creek Ct.

Phone: 785-250-6500

Email: n.c.graf@outlook.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

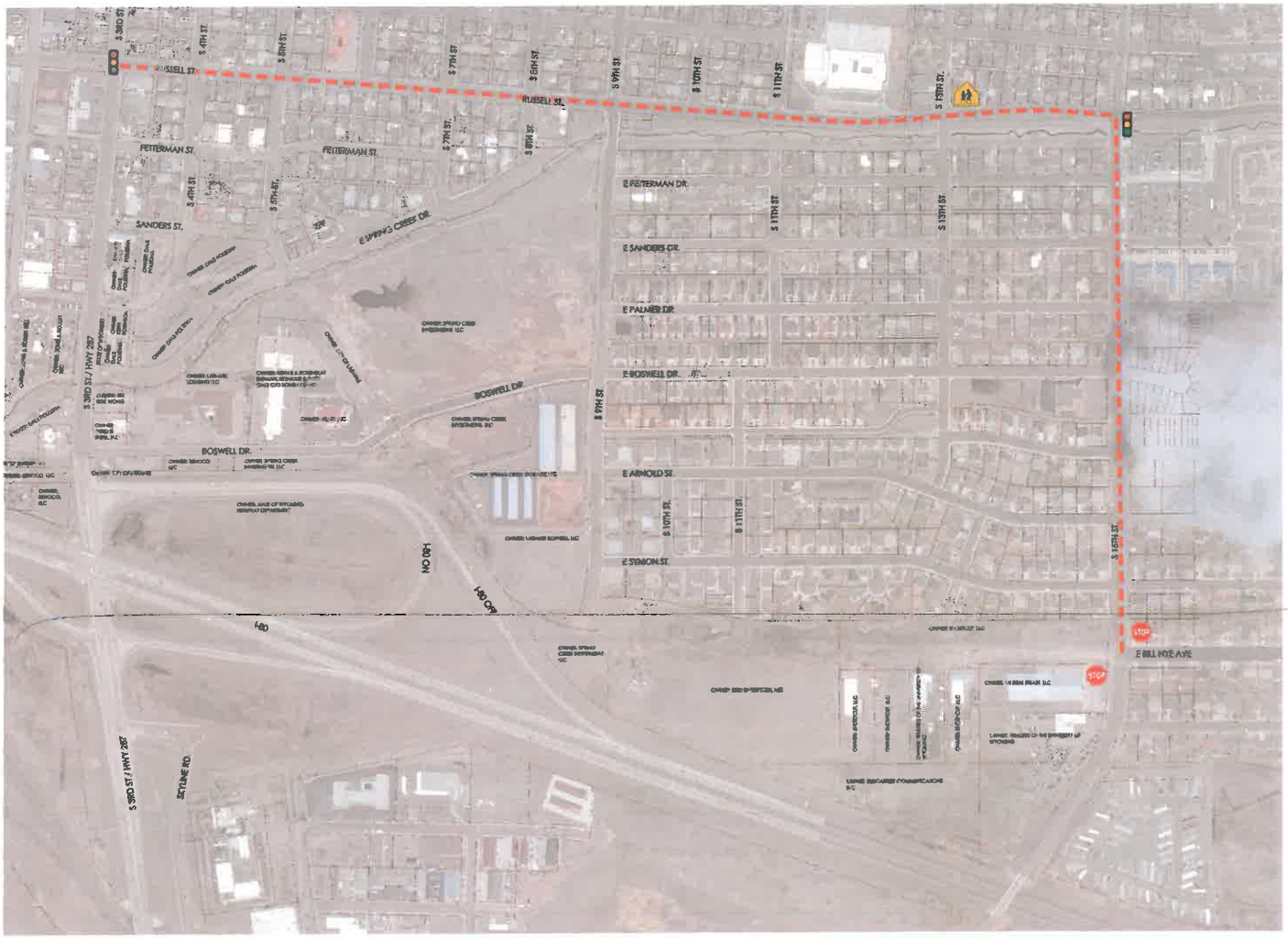
Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
[x]	[ ]	[ ]	[ ]	[ ]

Any additional comments?

_____

_____

_____



"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

- Gives access to all business
- Helps the flow of traffic

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☐

Any additional comments?

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☑	☐	☐	☐	☐

Any additional comments?

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	0
Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

_____

_____

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Thank you for providing input for this important project.

Please return your comment sheet to the check-in table before you leave.

If you prefer to mail or email your comments, please do so by November 6, 2015.

Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

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- [ ] Renter in the area
- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [ ] Potential Route user
- [ ] Other _____ (Please specify)

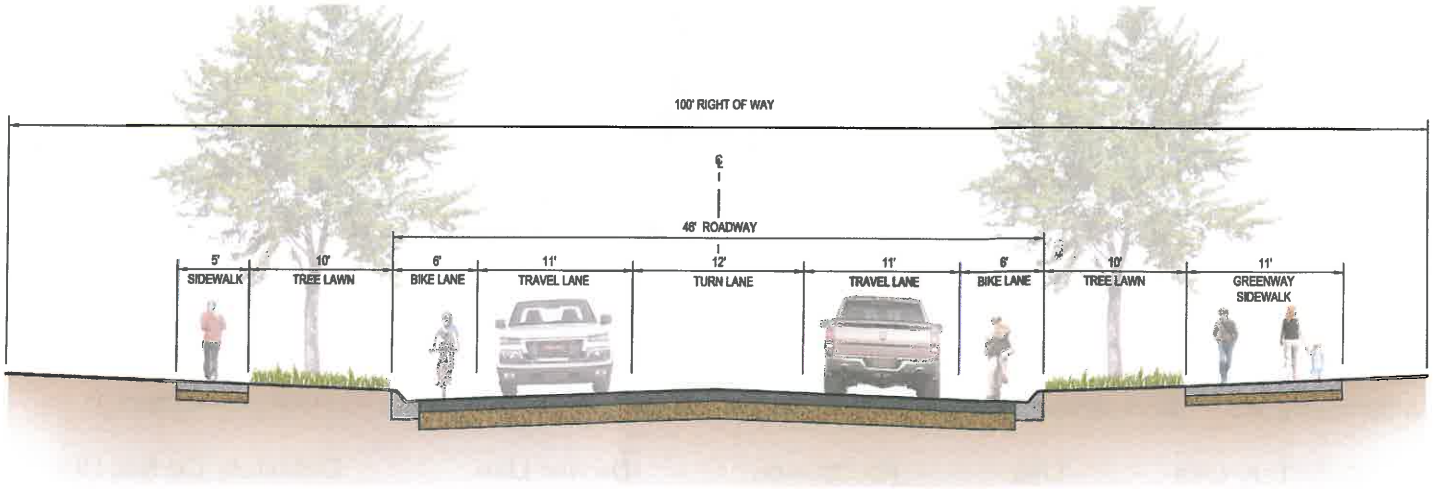
Please give your contact information in order to keep you informed (Optional)?

Name: NATHAN EWERT

Address: 1907 AUTUMN CIRCLE

Phone: _____

Email: _____



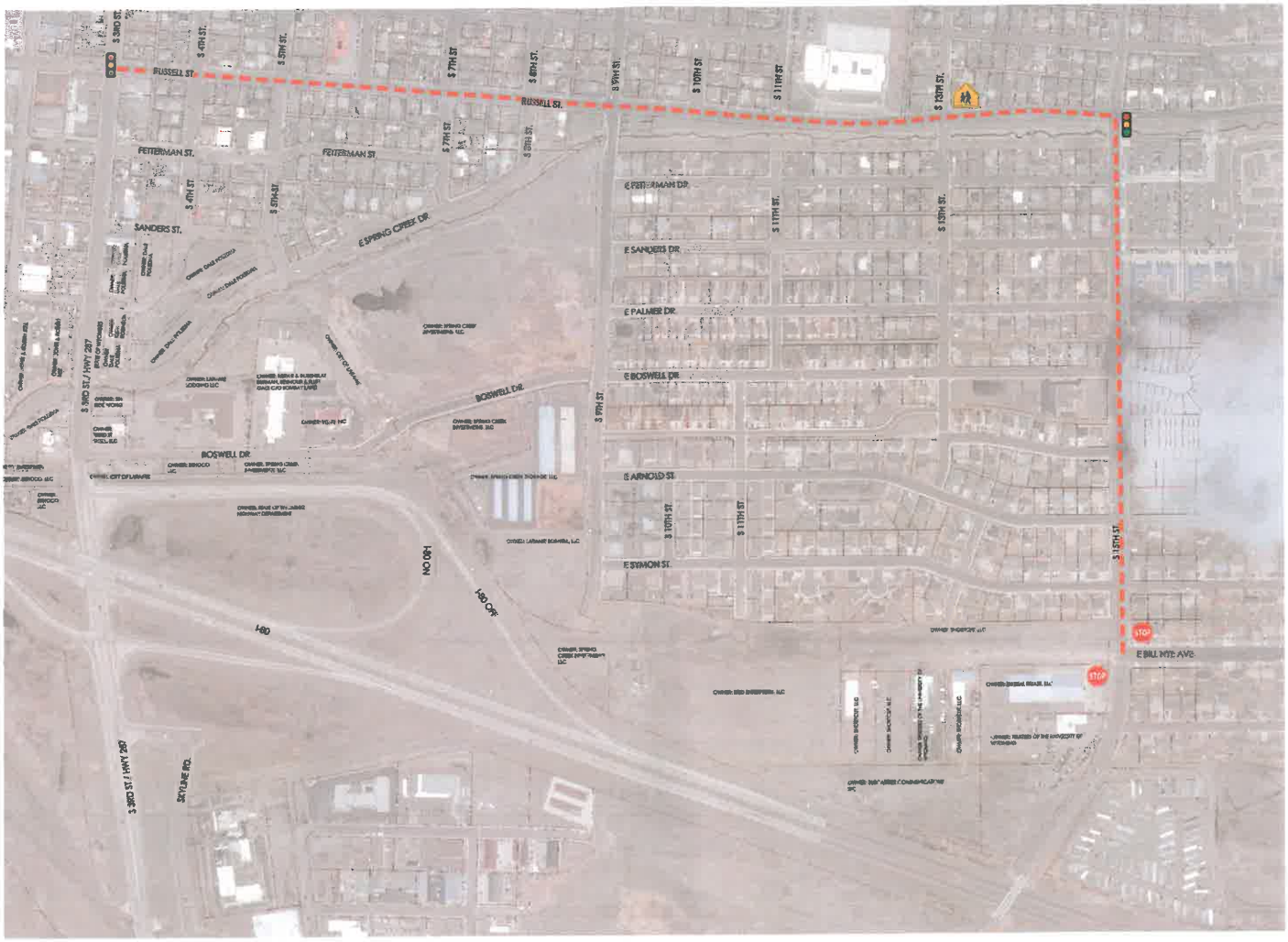
Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☒

Any additional comments?

Why left hand turn lane? doesn't seem to be a lot of ~~any~~ left hand turns on the street. maybe use the left hand turn space on either side for extra green space.



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Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☐

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

LOGISTICALLY BEST OPTION I THINK.

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

Y'ALL Be crazy to consider this

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

I like this option but Roundabout in Wyoming = good luck.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

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Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) How About a cycle track ?

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

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Email: AVI@avipc.com

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- [ ] Employee in the area
- [ ] Potential Route user
- [ ] Other _____ (Please specify)

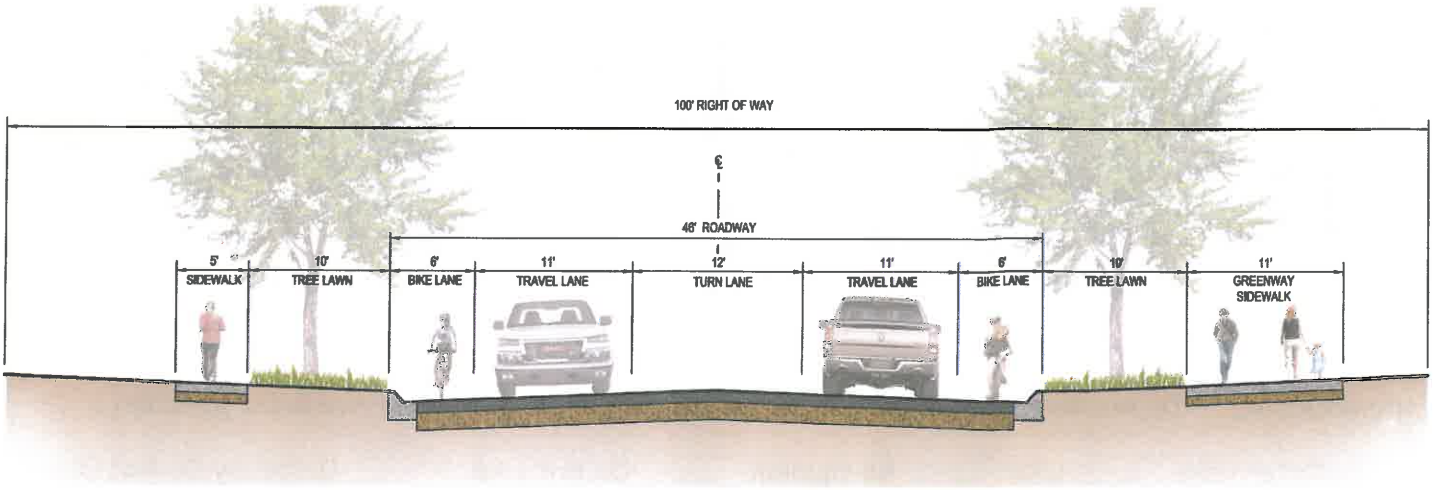
Please give your contact information in order to keep you informed (Optional)?

Name: _____

Address: _____

Phone: _____

Email: _____



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Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☐

Any additional comments?

_____

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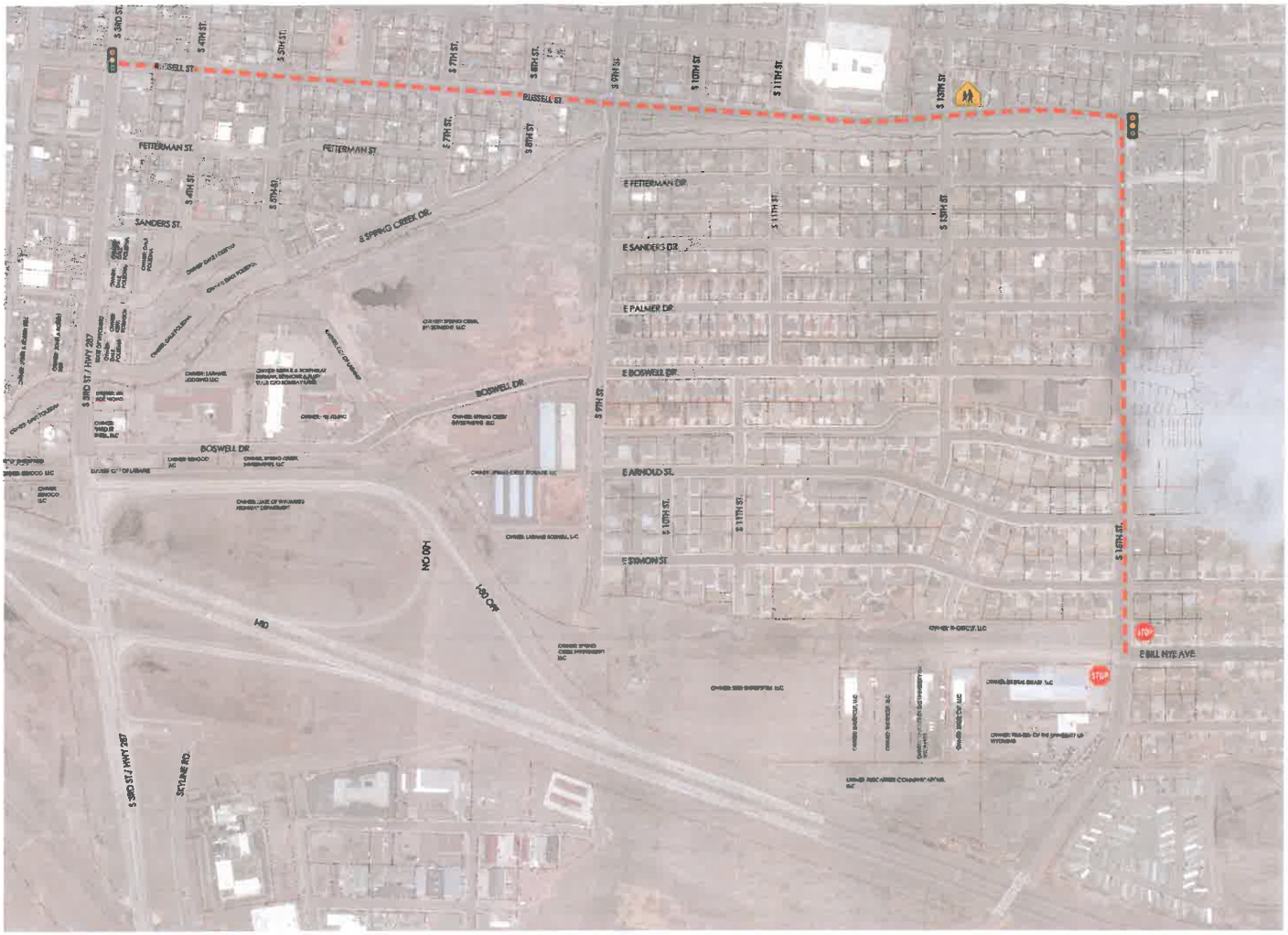

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Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
X	☐	☐	☐	☐

Any additional comments?

if it aint Broke don't fix it

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

(Please Turn Over)

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Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

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- ☐ Renter in the area
- ☐ Business owner in the area
- ☐ Commercial property owner
- ☐ Employee in the area
- ☐ Potential Route user
- ☒ Other LAND OWNER (Please specify)

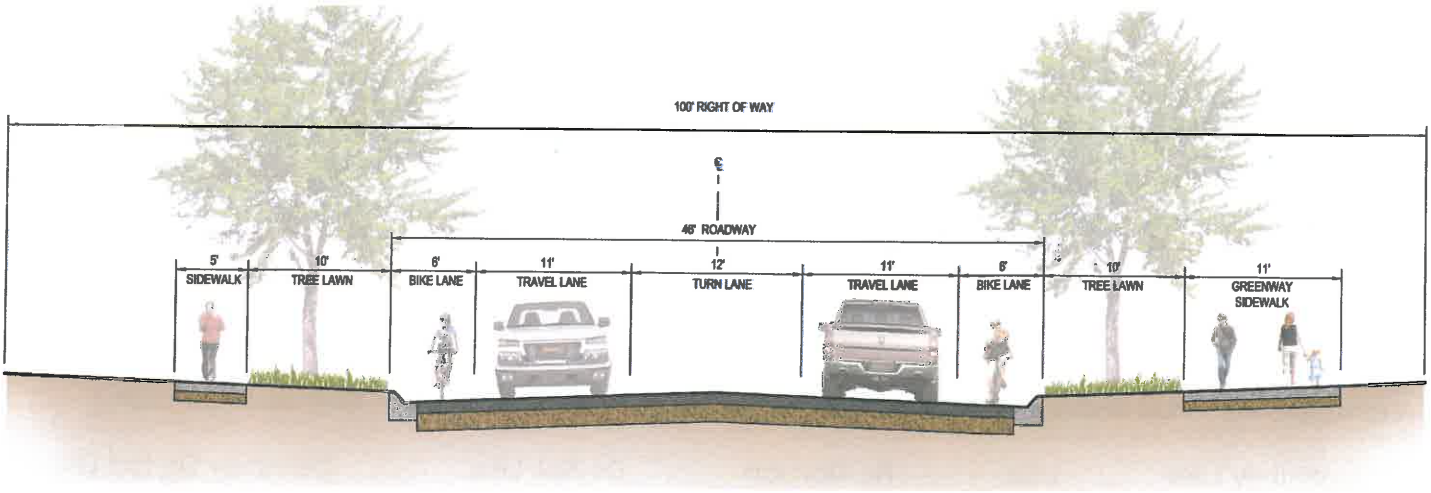
Please give your contact information in order to keep you informed (Optional)?

Name: DON BIRD

Address: 1719 PERSON ST.

Phone: 745-7078

Email: DON DOT BIRD @ AOL . COM



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☒	☐	☐

Any additional comments?

\\AVISRVVDCFP\Projects2\3786_BILLNYE\Meetings\Public Meeting\20151021_Meeting_1\20151001_Publicmeetingno.1Comment Card_Final.Doc

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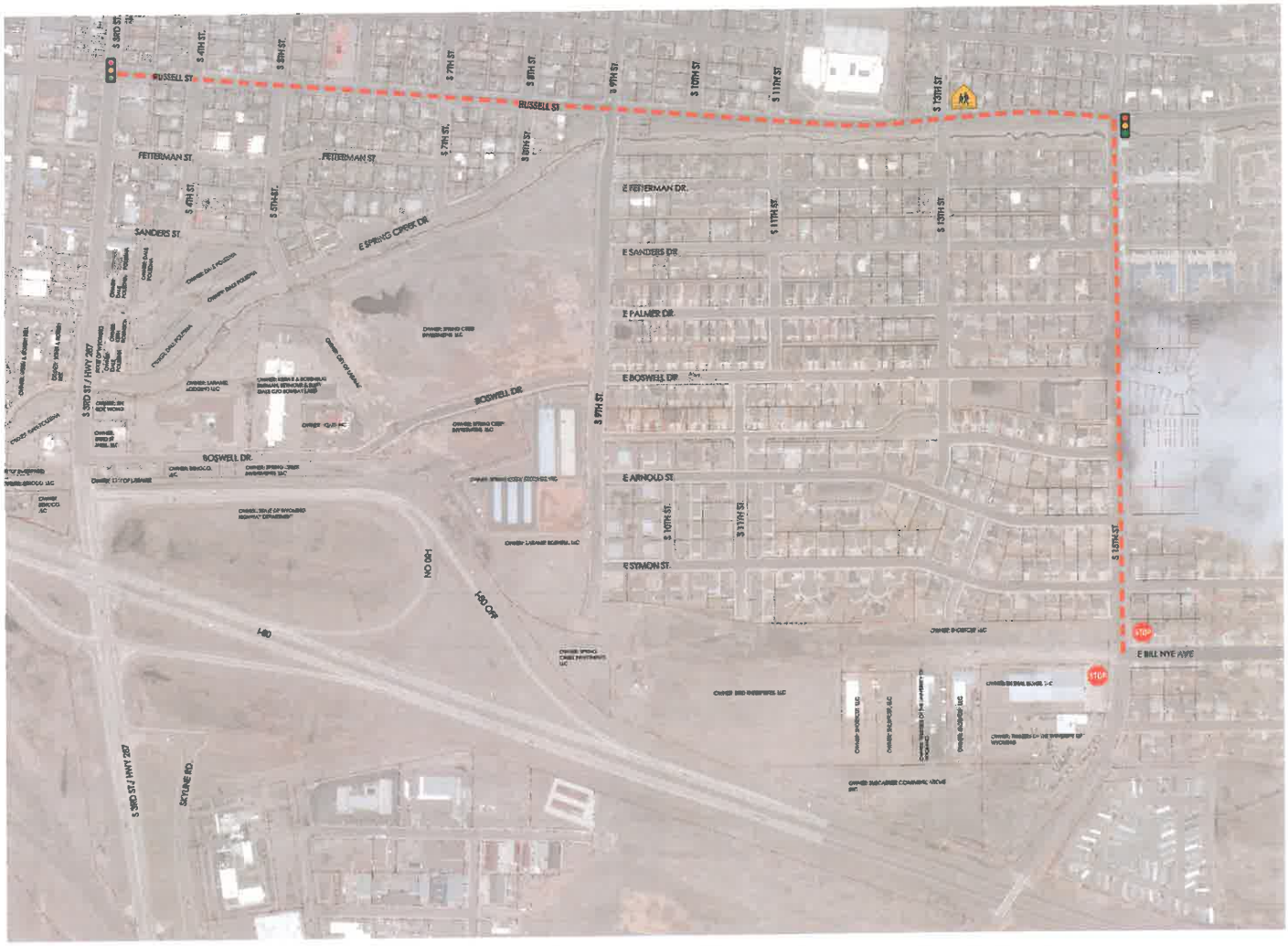

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☐

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	0
Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

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Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

- ☑ Home owner in the area
- ☐ Renter in the area
- ☐ Business owner in the area
- ☐ Commercial property owner
- ☐ Employee in the area
- ☑ Potential Route user
- ☐ Other _____ (Please specify)

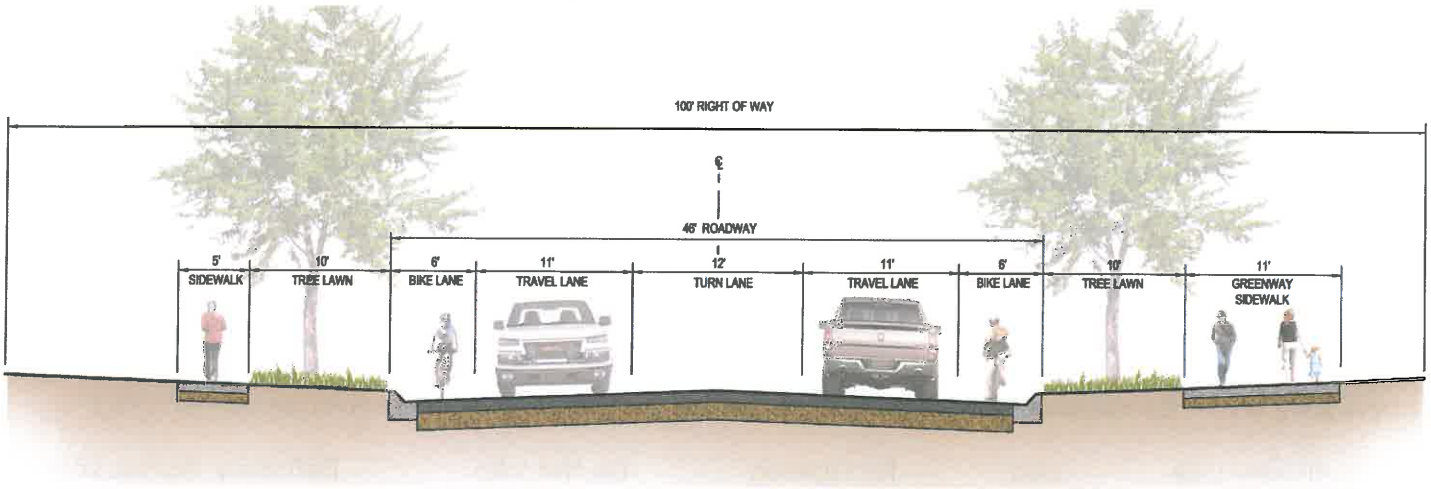
Please give your contact information in order to keep you informed (Optional)?

Name: Nick Swartz

Address: 101 S. 5th

Phone: 307-460-3282

Email: n4swartz@gmail.com



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Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☑	☐	☐	☐	☐

Any additional comments?

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(Please Turn Over)

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☑

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☑	☐	☐

Any additional comments?

Ambivalent – but more stoplights would not be desirable.

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☑

Any additional comments?

stoplights too close to each other, Cul de Sac is not desirable on Boswell

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☑	☐	☐	☐	☐

Any additional comments?

Roundabout would make a much-needed aesthetically-pleasing entrance into Laramie.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	0
Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

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- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [x] Potential Route user
- [ ] Other _____ (Please specify)

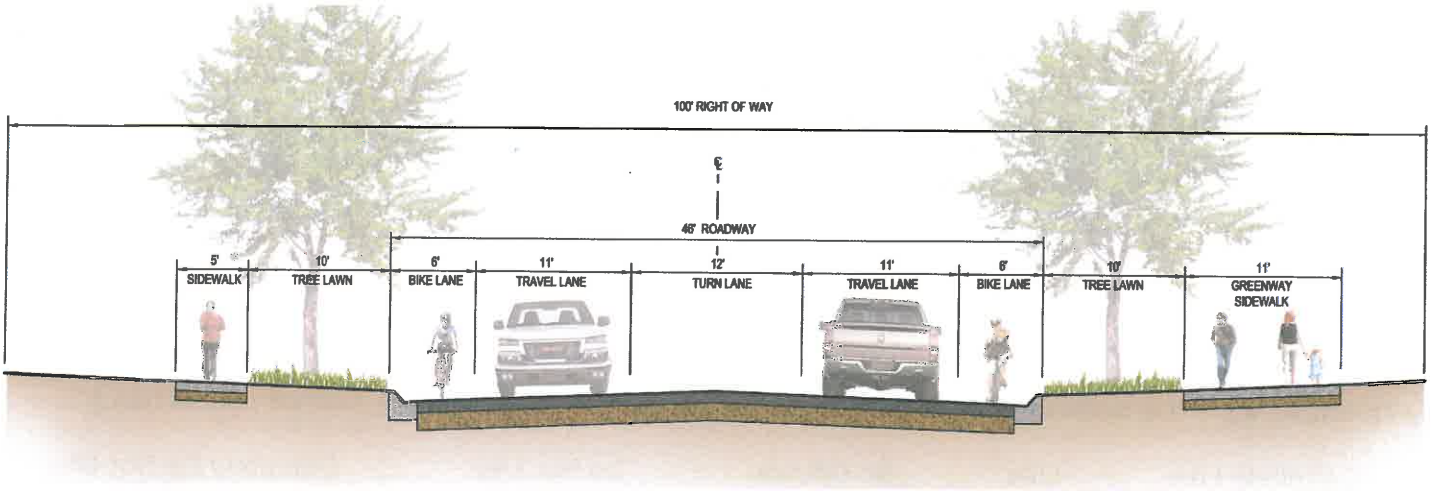
Please give your contact information in order to keep you informed (Optional)?

Name: DIANA SCHWEDE

Address: 1011 S. 5TH STREET

Phone: (307) 460-3280

Email: DIANA.SCHWEDE@GMAIL.COM



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
[x]	[ ]	[ ]	[ ]	[ ]

Any additional comments?

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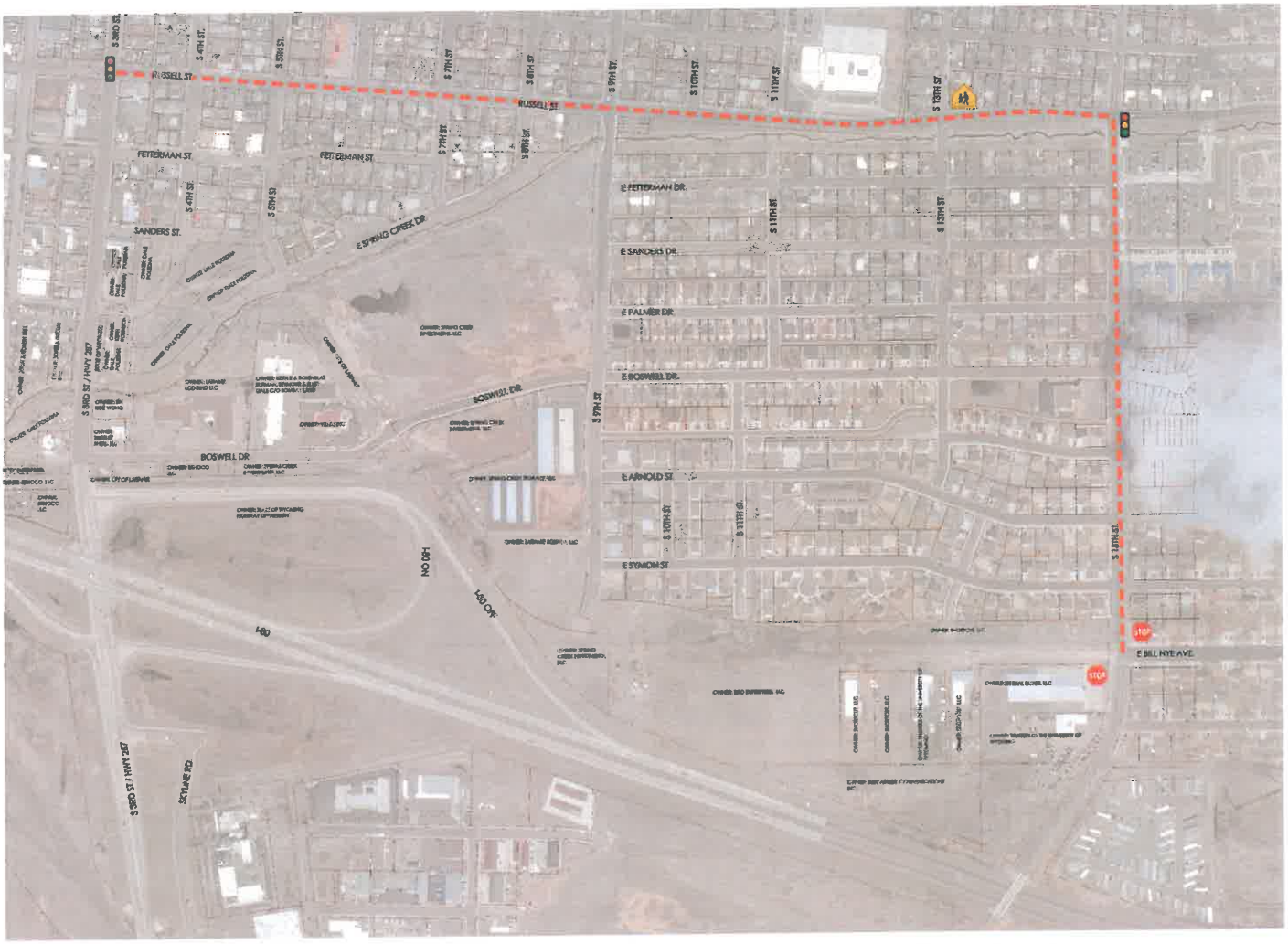
(Please Turn Over)



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Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

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Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

I ESPECIALLY APPRECIATE THE POTENTIAL ~~FOR~~ AN FOR IMPROVED EXPERIENCE WHEN ENTERING LARAMIE FROM THE SOUTH WITH THIS OPTION WITH REGARD TO TRAFFIC FLOW, & AESTHETICS.

GREAT WORK, TEAM! THANK YOU!

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	0
Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

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- ☐ Commercial property owner
- ☐ Employee in the area
- ☐ Potential Route user
- ☐ Other _____ (Please specify)

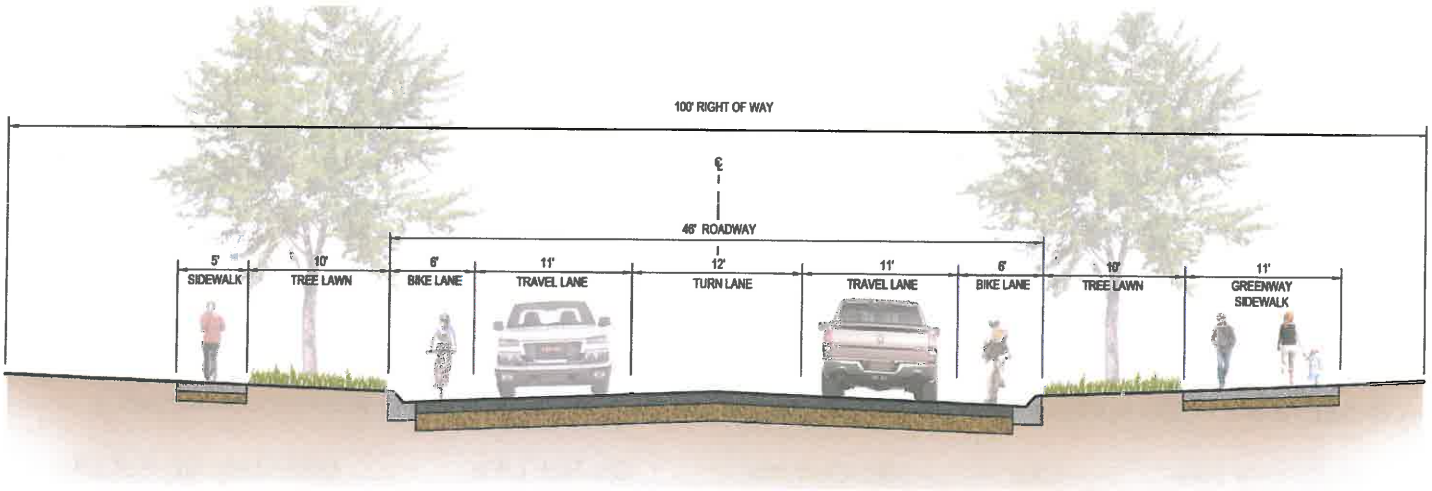
Please give your contact information in order to keep you informed (Optional)?

Name: JOHN KIRKALDIE

Address: 1331 SPRING CREEK DRIVE

Phone: 307-761-0053

Email: merlinjn29@outlook.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

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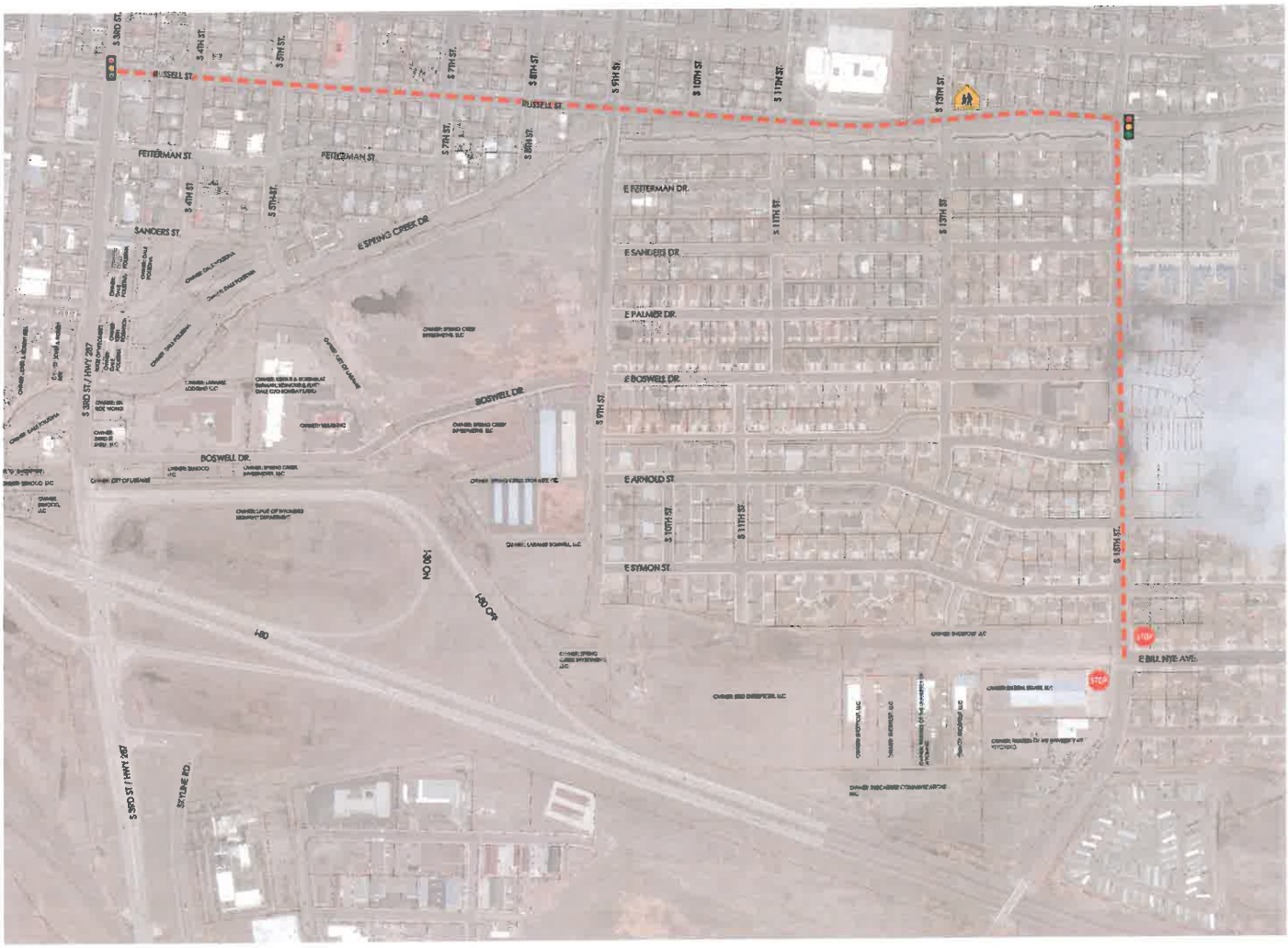

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

Too much congestion. A lot of safety concerns @ Russell and Spring Creek Drive. Have a lot of traffic ~~at~~ today. With this addition it would be almost bumper to bumper.

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☑	☐	☐	☐	☐

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

Too complicated for on and off ramp traffic.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	(5)	4	3	2	1	0
Higher Traffic Speeds	5	4	3	(2)	1	0
Lower Traffic Speeds	5	(4)	3	2	1	0
Pedestrians	5	(4)	3	2	1	0
Bicycles	5	(4)	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

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Bill Nye Avenue Corridor Study Comment Sheet

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- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [ ] Potential Route user
- [ ] Other _____ (Please specify)

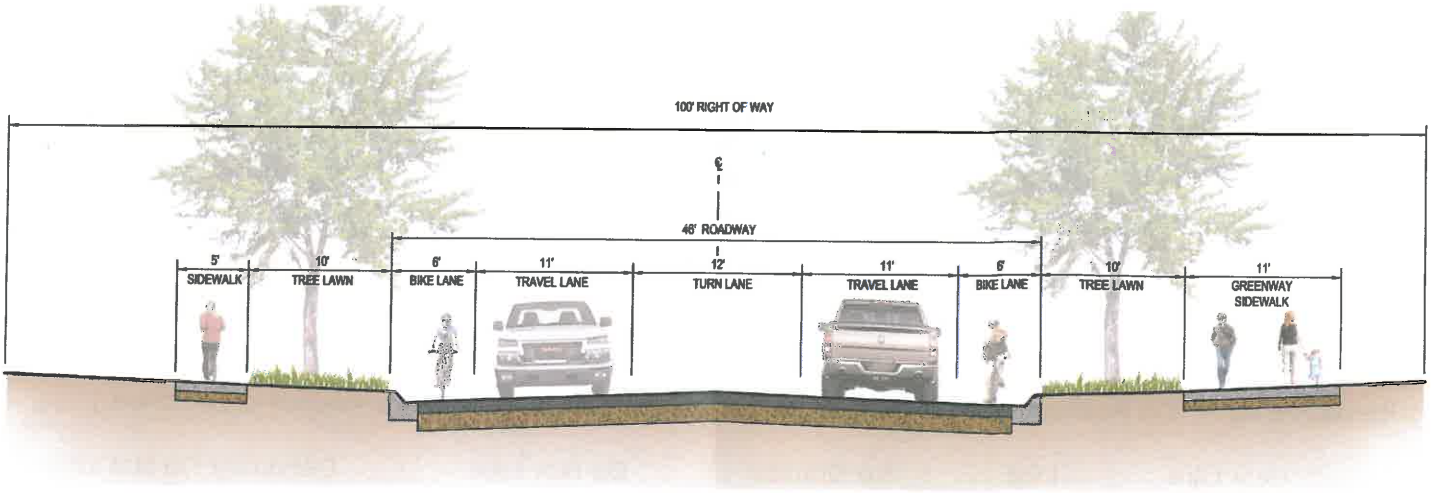
Please give your contact information in order to keep you informed (Optional)?

Name: JASON GREEN

Address: 1434 SYMONS

Phone: (303) 681-8909

Email: js0898@yahoo.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

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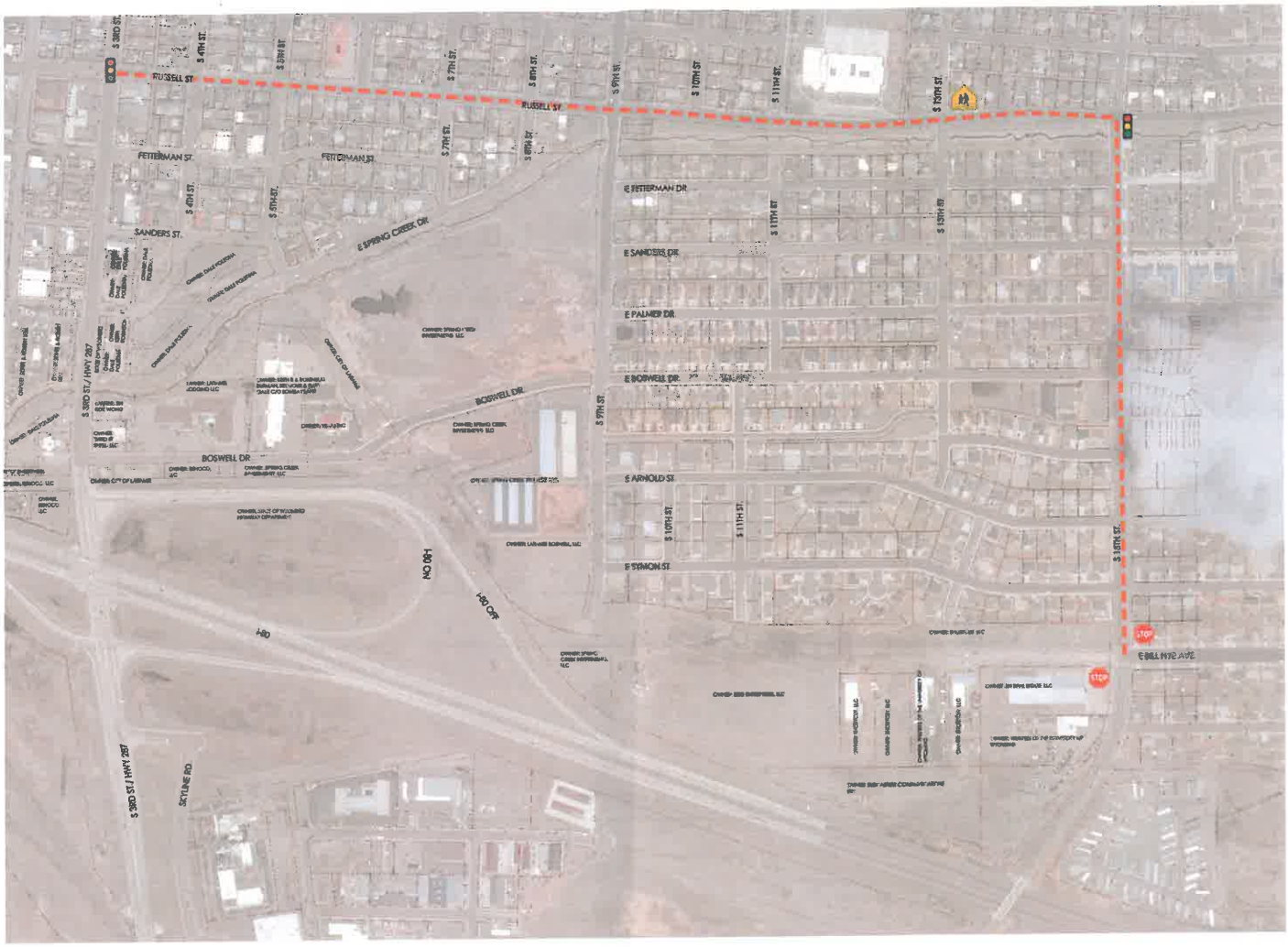
(Please Turn Over)



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☐	☐	☐	☐	☒

Any additional comments?

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Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

(Please Turn Over)

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Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

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Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

(Please Turn Over)

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Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

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- ☐ Commercial property owner
- ☐ Employee in the area
- ☐ Potential Route user
- ☐ Other _____ (Please specify)

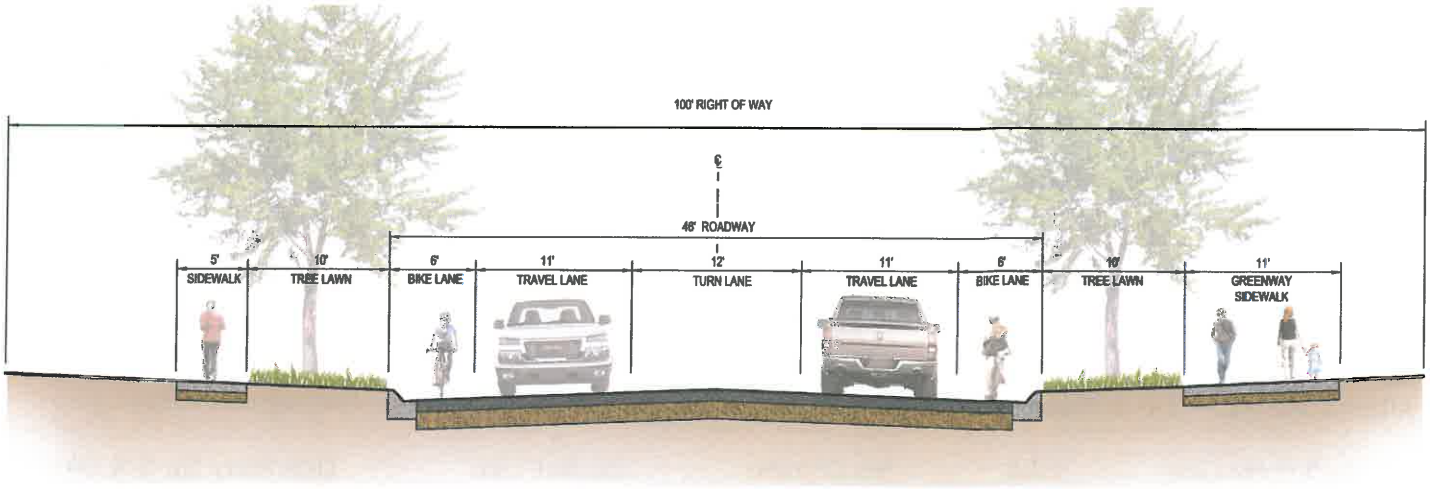
Please give your contact information in order to keep you informed (Optional)?

Name: Corona Village

Address: 513 Boswell Dr.

Phone: 307) 721-0167

Email: N/A



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☒	☐	☐

Any additional comments?

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(Please Turn Over)

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

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Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
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Any additional comments?

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Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

(Please Turn Over)

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Volume of Traffic	(5)	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	(1)	0
Lower Traffic Speeds	(5)	4	3	2	1	0
Pedestrians	(5)	4	3	2	1	0
Bicycles	(5)	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

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- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [ ] Potential Route user
- [x] Other own 12 Rental units in the area. (Please specify)

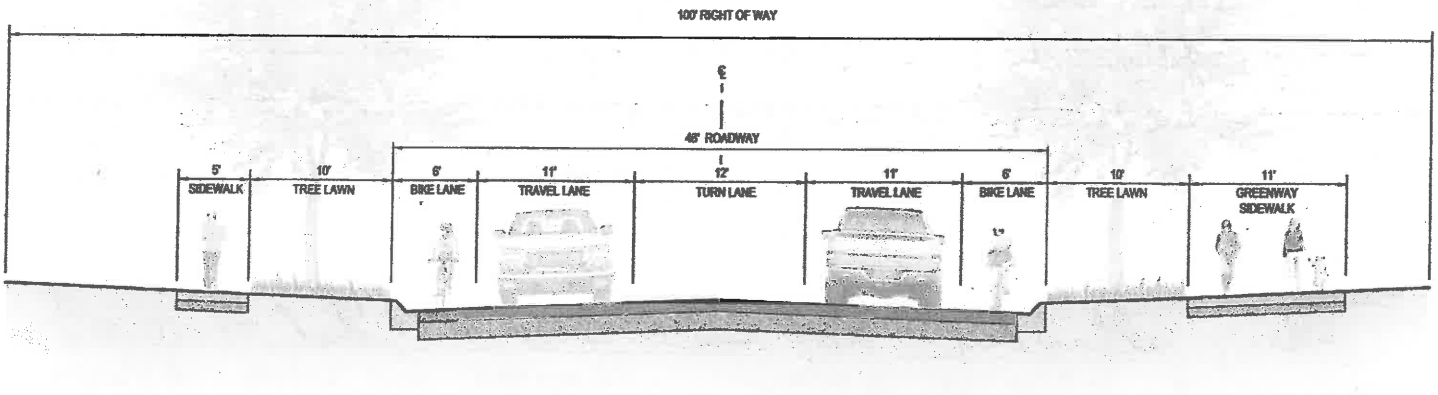
Please give your contact information in order to keep you informed (Optional)?

Name: JEANIE ~~LARAMIE~~ SCHRUMP

Address: 1117 S. 5th St

Phone:

Email: jeanielaramie@aol.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

is a turn lane needed — or can it be just @ 3rd Street intersect to keep size (& hopefully speeds) down?

Like to see trees along the roadway.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	(3)	2	1	0
Higher Traffic Speeds	5	4	3	2	(1)	0
Lower Traffic Speeds	(5)	4	3	2	1	0
Pedestrians	(5) if greenbelt	4	3	2	1	0
Bicycles	5	4	(3)	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

I am concerned about the rate of speed on such a long roadway - perhaps speed bumps @ pedestrian intersects?
Bicycles are very seasonal in Laramie. Not sure how many bikes would use this roadway as far as it is from UW & downtown.
It is very hard to walk on this gypsum - retains water, slippery - not sure the diagonal strip along Corona Village would be used. If sidewalk along Spring Creek is greenbelt, then ok - otherwise, there is already a sidewalk on the N side of Spring Creek from 5th to 9th.

Thank you for providing input for this important project.

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Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

Russell/Spring Creek is already a school bus route. Neighborhoods (existing) are not affected.
This area is gypsum – not conducive to development.
I have lived on S. 5th since 1972 & know this area very well.

Boswell Drive Realignment at 3rd Street.

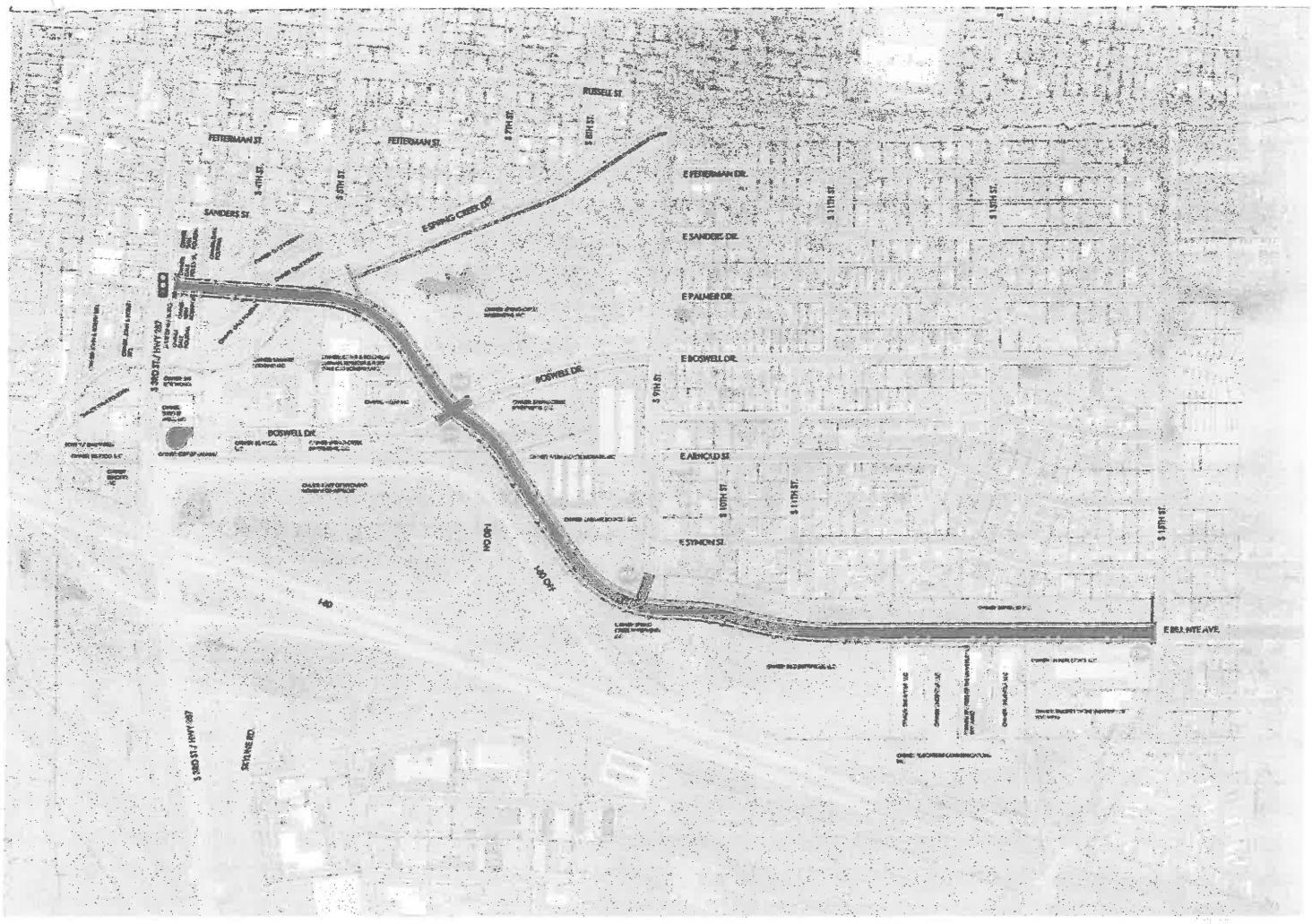
Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

Bill Nye would not affect existing neighborhoods. No need to build a bridge over Spring Creek. Chinese restaurant has been closed for YEARS. 9th Street bridge is somewhat narrow, but that is good due to proximity to elementary school.

(Please Turn Over)



Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☒	☐

Any additional comments?

Needs a large bridge to cross Spring Creek. Traverses an area where locals walk their dogs (golf na lots). Don't like thoroughfare coming so close to residences on S. 4th, S. 5th, & Spring Creek Drive. I do see, however, where this roadway is less intrusive to businesses. There is already a large space between the "modular" & the old Texaco (now a 4ack? shop) on E. 3rd & good access to Sushi, Motel 8, & Corona Village.

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

Too complex within close proximity of I-80 off/on. Worried about semis (Southbound) needing to ~~exit~~ enter onto I-80 & cross car lanes due to wide turns semis need. Cheyenne roundabout was pushing to VA hospital is MISERABLE. Vandehei exit (far less traffic) is fine. I do not think this will be a wise decision here. (Pershing in Cheyenne: accidents up; degree of damage per wreck down.)

(Please Turn Over)

Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

- ☒ Home owner in the area
- ☐ Renter in the area
- ☐ Business owner in the area
- ☐ Commercial property owner
- ☐ Employee in the area
- ☒ Potential Route user
- ☐ Other _____ (Please specify)

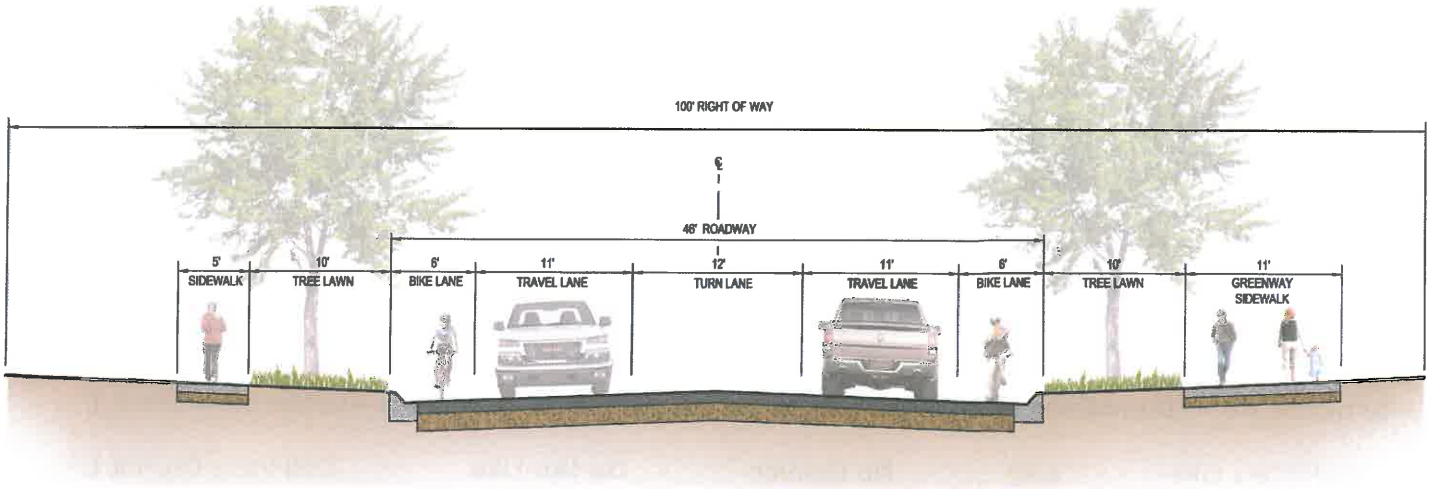
Please give your contact information in order to keep you informed (Optional)?

Name: Nick Graf

Address: 1913 River Creek Ct

Phone: 785 250 6601

Email: Nicholas.e.graf@gmail.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

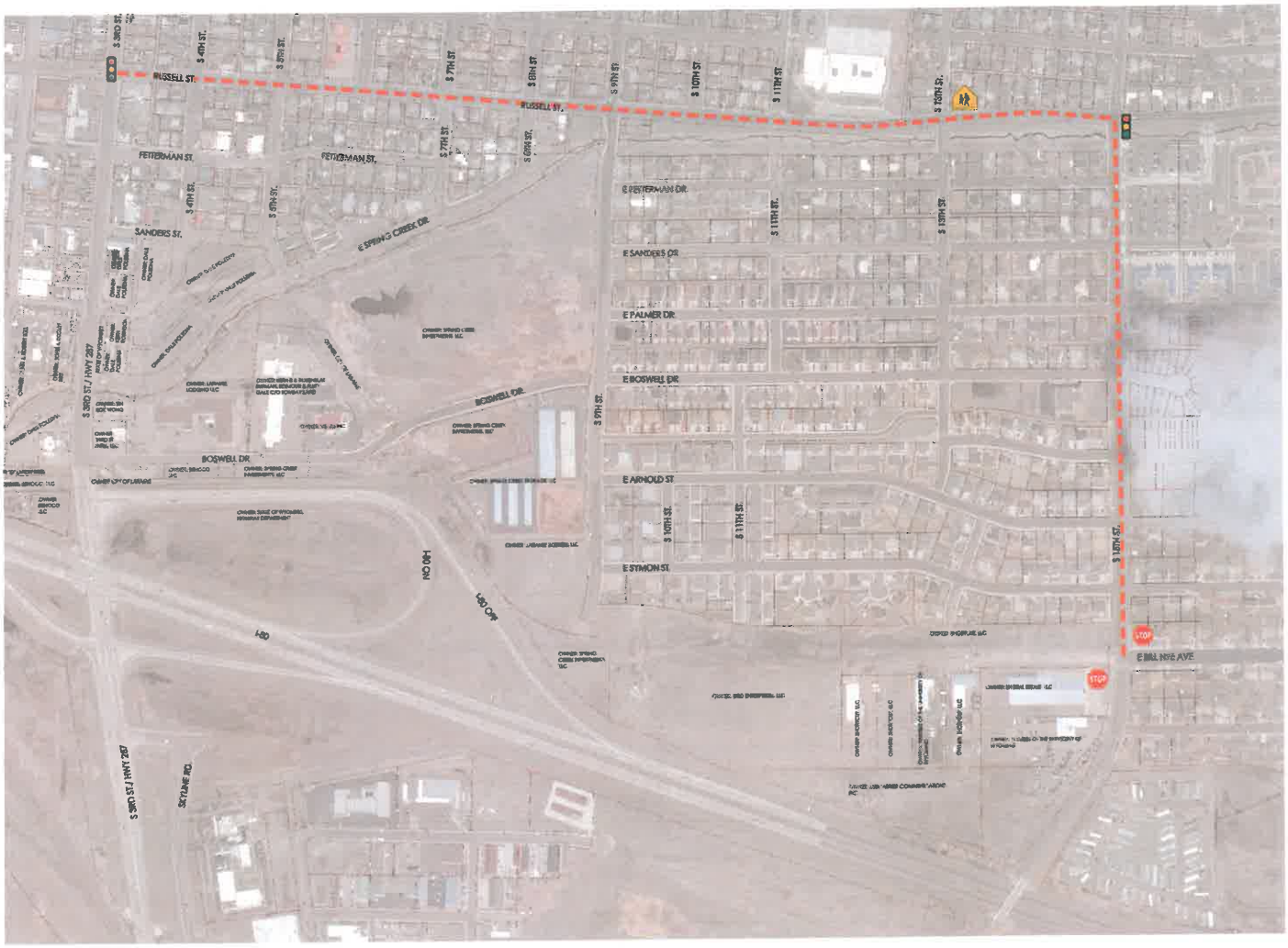
Any additional comments?

_____

_____

_____

(Please Turn Over)



"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☑

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☒	☐	☐

Any additional comments?

I Really Dont want another light in town.

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

I am

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

Do this.

No New lights tht yeah

add's the ability, add an attendance welcome to Larame

in round abt.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	0
Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) No new lights

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

I really like ~~the~~ the round about!.

Thank you for providing input for this important project.

Please return your comment sheet to the check-in table before you leave.

If you prefer to mail or email your comments, please do so by November 6, 2015.

Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

- [x] Home owner in the area
- [ ] Renter in the area
- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [ ] Potential Route user
- [ ] Other _____ (Please specify)

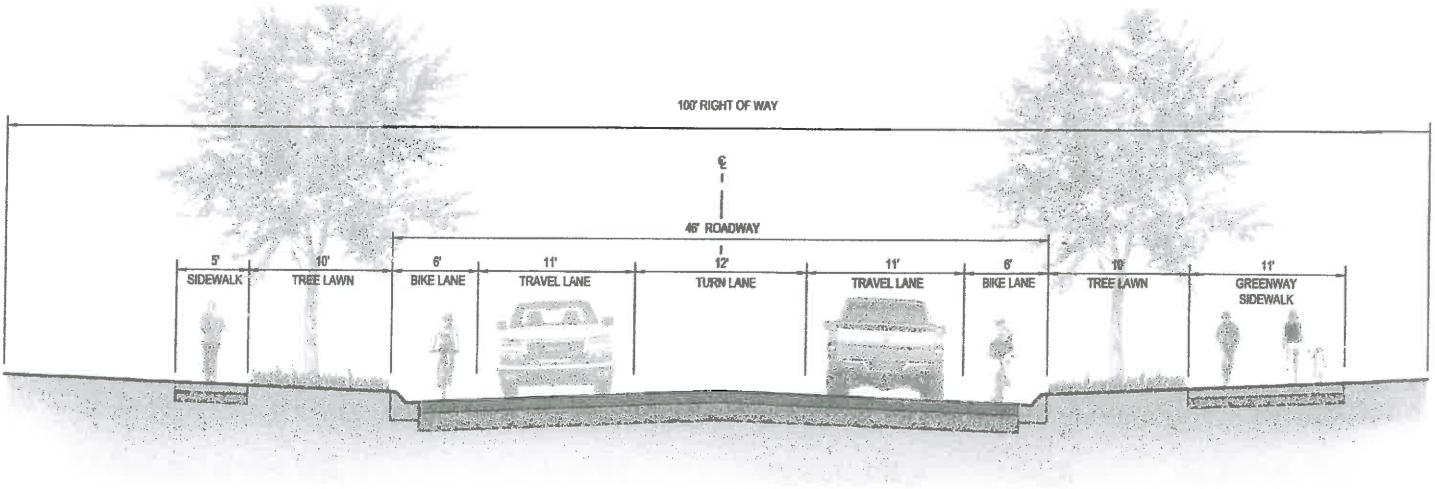
Please give your contact information in order to keep you informed (Optional)?

Name: DAVE NELSON

Address: 1215 S. 5TH ST, LARAMIE NOV 9 2015

Phone:

Email: NELSONASSC@AOL.COM



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

_____

_____

_____

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☑	☐	☐

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☑

Any additional comments?

TOO CLOSE TO RESIDENTIAL AREA

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☑	☐	☐

Any additional comments?

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	0
Lower Traffic Speeds	5	4	3	2	1	0
Pedestrians	5	4	3	2	1	0
Bicycles	5	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

Thank you for providing input for this important project.

Please return your comment sheet to the check-in table before you leave.

If you prefer to mail or email your comments, please do so by November 6, 2015.

Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

- [x] Home owner in the area
- [ ] Renter in the area
- [ ] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [ ] Potential Route user
- [ ] Other _____ (Please specify)

Please give your contact information in order to keep you informed (Optional)?

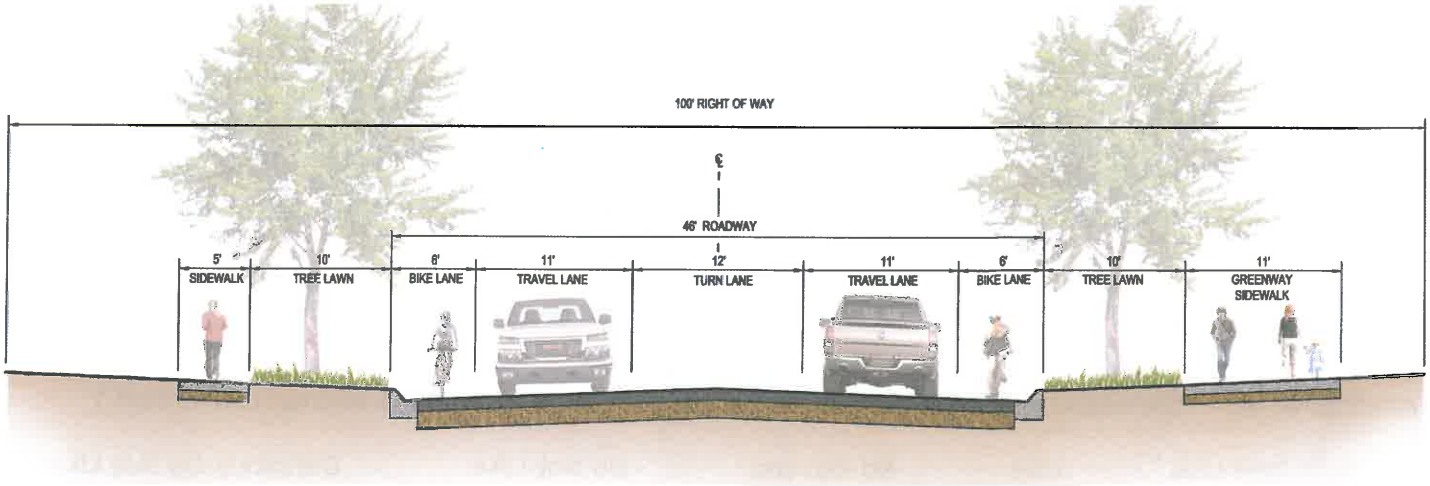
Name: Annie Nelson

Address: 1215 South 5TH St

NOV 9 2015

Phone: cell: 307-761-3145

Email: anniegowyo@aol.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☑	☐	☐	☐	☐

Any additional comments?

\\AVISRVVDCFP\Projects2\3786_BILLNYE\Meetings\Public Meeting\20151021_Meeting_1\20151001_Publicmeetingno.1Comment Card_Final.Doc

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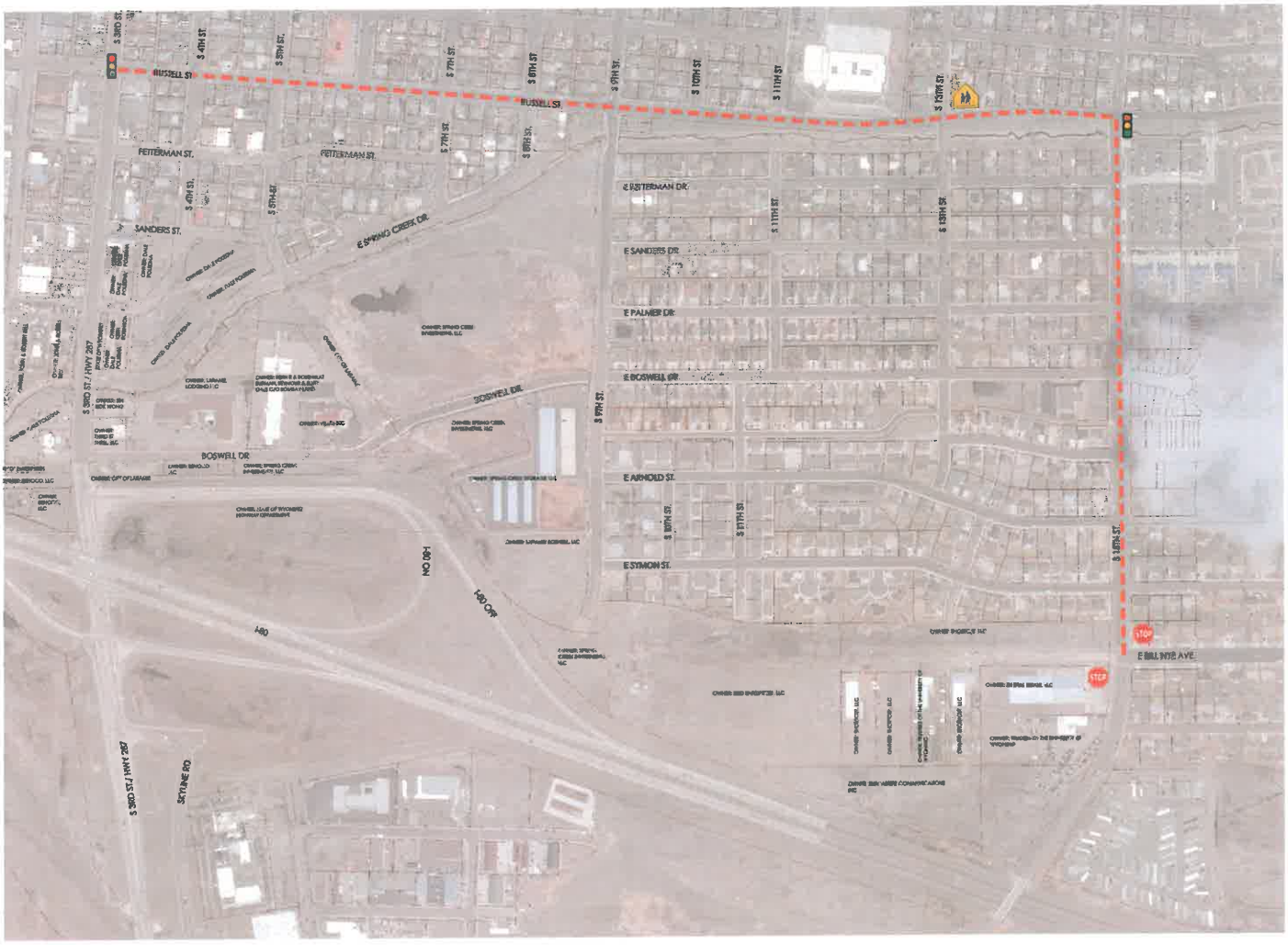

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

As a homeowner I like this option but I know folks will use Boswell Drive & it could become congested so we, as a county/city should plan for traffic increases now.

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☑	☐	☐	☐

Any additional comments?

Ok - not great

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

Expensive!!! Both road & foot bridge to cross Spring Creek & disruptive to my neighborhood.

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

This seems the best option to control traffic & most cost effective. Also, least disruptive to 5TH St. neighborhoods & businesses.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	4	3	2	(1)	0
Higher Traffic Speeds	5	4	3	2	(1)	0
Lower Traffic Speeds	5	(4)	3	2	1	0
Pedestrians	5	(4)	3	2	1	0
Bicycles	5	(4)	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

_____

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Thank you for providing input for this important project.

Please return your comment sheet to the check-in table before you leave.

If you prefer to mail or email your comments, please do so by November 6, 2015.

Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

Bill Nye Avenue Corridor Study Comment Sheet

Which of the following best describes you (Please check all that apply)?

- [x] Home owner in the area
- [ ] Renter in the area
- [x] Business owner in the area
- [ ] Commercial property owner
- [ ] Employee in the area
- [x] Potential Route user
- [ ] Other _____ (Please specify)

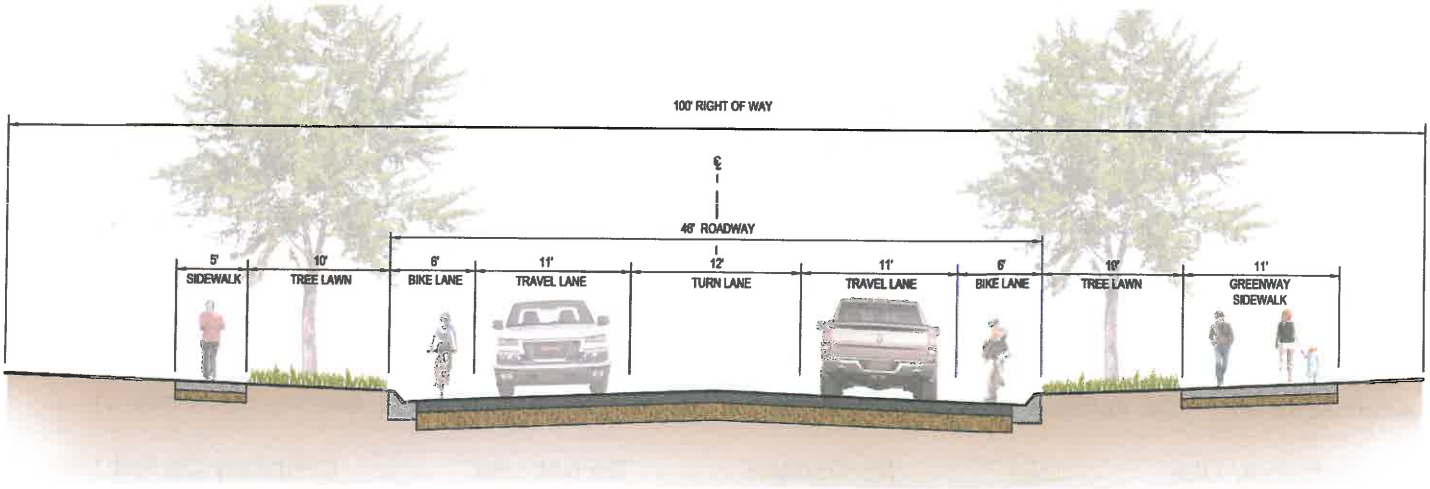
Please give your contact information in order to keep you informed (Optional)?

Name: Evelyn Hill & James Tuthill

Address: 652 N Pierce St 82070

Phone: 307 399 0932

Email: hillevelyn@gmail.com



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

Please keep bike lanes completely separated from vehicular traffic

"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

As much greenery, planted areas, xtra trees seating by creeks, ponds, native species for habitat, blah, blah, blah. Protection from noise in housing areas & play areas.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	(5)	4	3	2	1	0
Higher Traffic Speeds	5	4	3	2	1	(0)
Lower Traffic Speeds	5	4	3	2	1	(0)
Pedestrians	(5)	4	3	2	1	0
Bicycles	(5)	4	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) noise barriers - to be glad you live near the beautiful areas.

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

Thank you for providing input for this important project.

Please return your comment sheet to the check-in table before you leave.

If you prefer to mail or email your comments, please do so by November 6, 2015.

Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

Return to City by Nov 6

Bill Nye Avenue Corridor Study Comment Sheet

COL/CMO
NOV 03 2015
1:40 pm

Which of the following best describes you (Please check all that apply)?

- ☒ Home owner in the area
- ☐ Renter in the area
- ☐ Business owner in the area
- ☐ Commercial property owner
- ☐ Employee in the area
- ☐ Potential Route user
- ☐ Other _____ (Please specify)

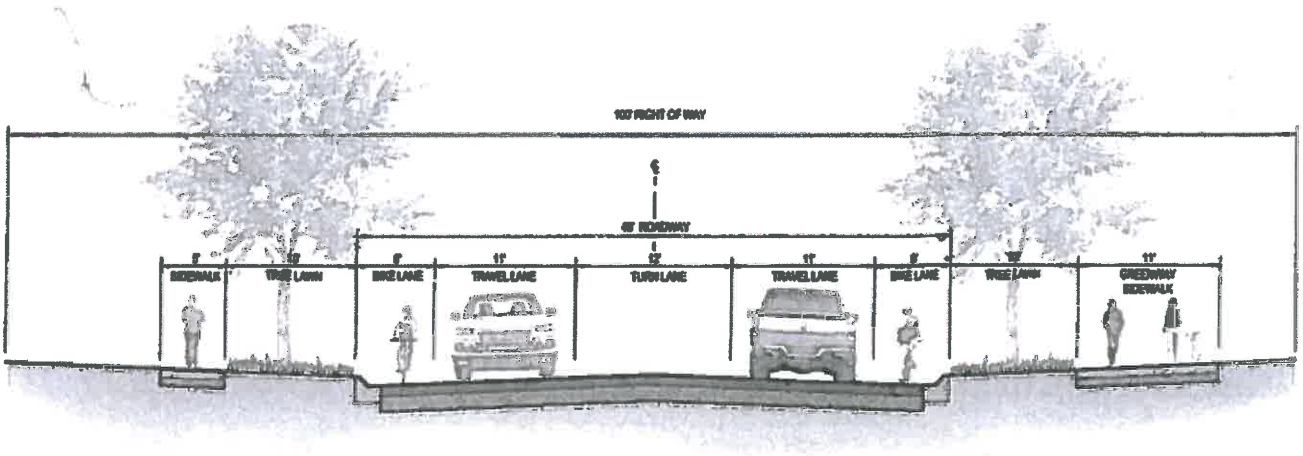
Please give your contact information in order to keep you informed (Optional)?

Name: Ed + Amy Bouse

Address: 1219 South 4th Street

Phone: 307-742-7850

Email: _____



Bill Nye Avenue Looking West

Proposed Typical Section on Bill Nye Avenue looking west.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

All in all people are going to find the best route for themselves. Let the public start to think for themselves for a change.

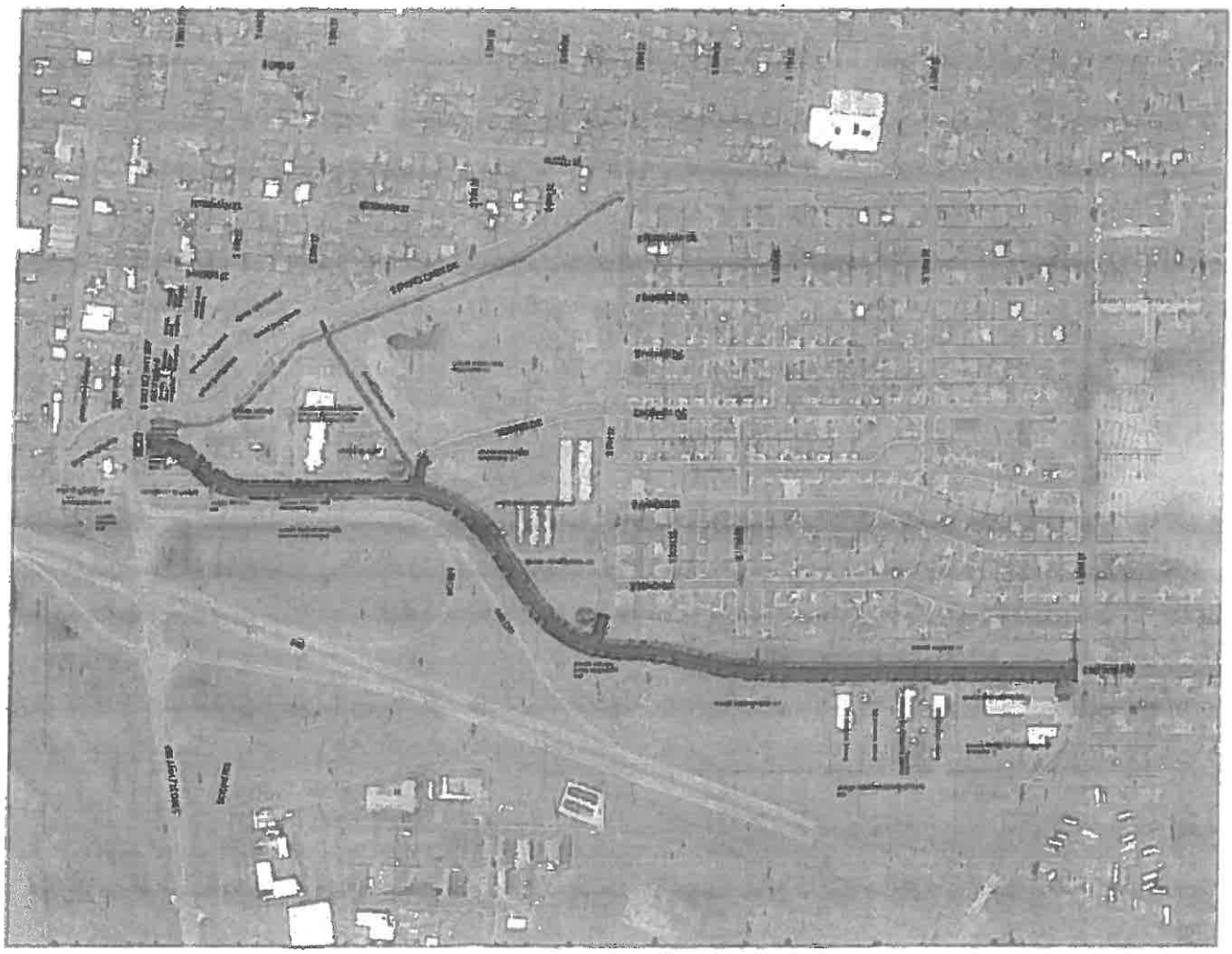
"Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Drive

Alternative #1 – "Do nothing" (Utilize 15th Street to Russell Street for Bill Nye Avenue connection.)

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

Wise use of tax payer monies. With Wyo. tech. going down the tubes, it's time to conserve.



Boswell Drive Realignment at 3rd Street.

Alternative #2 –Boswell Drive Realignment at 3rd Street.

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☒	☐	☐	☐

Any additional comments?

The stop light could also slow down the late night drag races.

(Please Turn Over)

Bill Nye Connection at Palmer Drive 3rd Street

Alternative #3 – Bill Nye Connection at Palmer Drive 3rd Street

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☐	☐	☐	☐	☒

Any additional comments?

Lots of toxic waste in the ground, around this area. Old gas stations (gas, oil + batterys) also a spill of chromium (2-3 hundred gallons) cleaned up twice, but still some left. Plus this area is where the city dumps snow (no telling what tearing this area up is going to disturb.

Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Alternative #4 – Roundabout at 3rd Street, Boswell Drive, and Westbound Off and On Ramps

Definitely Like	Like	No Opinion	Do Not Like	Definitely Do Not Like
☒	☐	☐	☐	☐

Any additional comments?

Works well in Cheyenne.

(Please Turn Over)

Rate the importance of the following transportation modes (circle the most appropriate for each issue) based on what you consider to be the most important design consideration for Bill Nye Avenue?

Description	Very Important to Accommodate	Important to Accommodate	Neutral	Important to Discourage	Most Important to Discourage	No Opinion
Volume of Traffic	5	(4)	3	2	1	0
Higher Traffic Speeds	5	4	3	2	(1)	0
Lower Traffic Speeds	(5)	4	3	2	1	0
Pedestrians	5	(4)	3	2	1	0
Bicycles	5	(4)	3	2	1	0
Other	5	4	3	2	1	0

If Other (please specify) _____

Additional Comments

Do you have any additional ideas, information, or other comments that you would like to provide at this time?

Thank you for providing input for this important project.

Please return your comment sheet to the check-in table before you leave.

If you prefer to mail or email your comments, please do so by November 6, 2015.

Mail them to: AVI, P.C. 1103 Old Town Lane, Cheyenne, Wyoming 82009.

Email: AVI@avipc.com

APPENDIX C

Presentations

ENGINEERING
PLANNING
SURVEYING
PC

Bill Nye Avenue Corridor Study

Steering Committee Meeting #1

August 25, 2015

•LIST OF ATTENDEES •

NAME	COMPANY	EMAIL	CELL
Brad Emmons	AVI	emmons@avipc.com	631-6861
MARK WINGATE	WYDOT	mark.wingate@wyo.gov	777-4180
EARL SMITH	LARAMIE	ESMITH@CITYOFLARAMIE.ORG	721-5241
Jeff Purdy	FHWA	Jeffrey.Purdy@dot.gov	771-2942
Eric Jaap	COL	ejaap @ city of laramie.org	343-3346
RANDY GRIESBACH	WYDOT	randy.griesbach @ wyo.gov	745-2116 c 760-4108
Randy Hunt	City of Laramie	rhunt@cityoflaramie.org	307-343-3308
Charles Bloom	City of Laramie	cbloom@cityoflaramie.org	721.5232
TOM COBB	AVI, P.C.	cobbc@avipc.com	970.214.6542

BILL NYE AVENUE CORRIDOR STUDY

Steering Committee Meeting

August 24, 2015

LARAMIE 1868

STS

ENGINEERING
PLANNING
SURVEYING
PC

Agenda

- Administrative
  - Data Needs
  - Goals of Meeting
- Stakeholder Ideas
  - Primary Connections
    - Sanders Street (Comprehensive Plan)
    - 4th Street
    - Boswell Drive
    - 9th Street
    - Realign Boswell
    - RAB Boswell
    - RAB 3rd Street
    - Dual RAB (RAB 3rd Street and RAB EB Off Ramp/ EB On Ramp)
    - Other Ideas
- Possible Alternatives for Public Meeting
  - Pro's and Con's
- Conceptual Typical Section
- Additional Brainstorm Ideas
- Where to we go from here?

Administrative

- Data Needs
  - Larger Land Use Plan Area
- Goals of Meeting
  - Review and Evaluate Stakeholder and Consultant Options
  - Establish Options to Developed for Public Meeting
  - Set Tentative Date for Steering Committee Meeting #2
  - Set Tentative Date for Public Meeting

Original Sanders Street Connection

4th Street Connection

Boswell Drive Connection

9th Street Connection

Other Alternates Realign Boswell at 3rd St.

Other Alternates Realign Boswell

RAB Boswell Drive

RAB 3rd Street

Dual RAB 3rd Street at Boswell/ EBL I-80

RT Turn In and Out at Boswell Drive

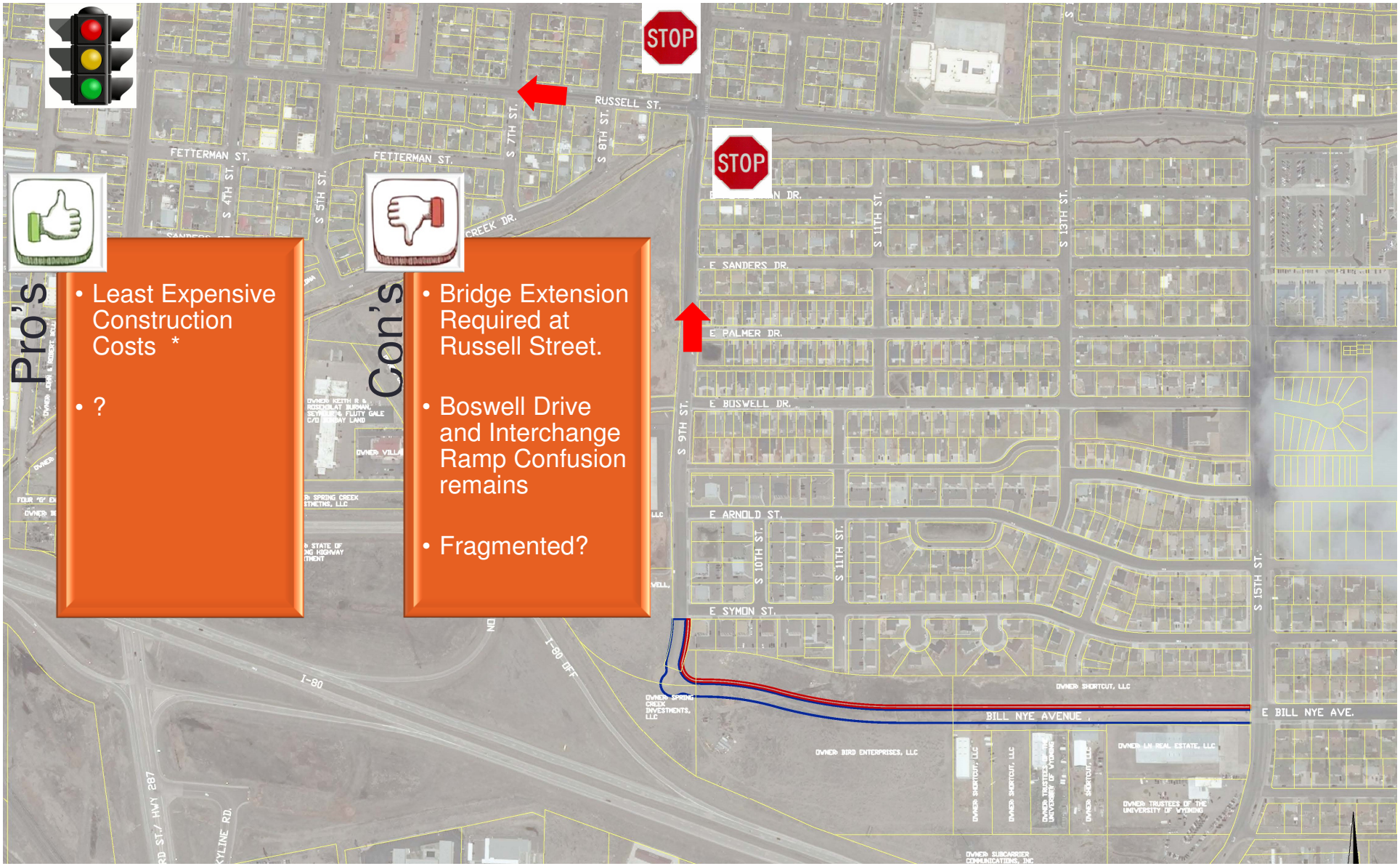
Other Ideas

- Indirect Left Turn parkway 3rd Street
- Grade Separated Interchange for WBL On-ramp
- Large Roundabout under Overpass Structure/ reconfigure ramps

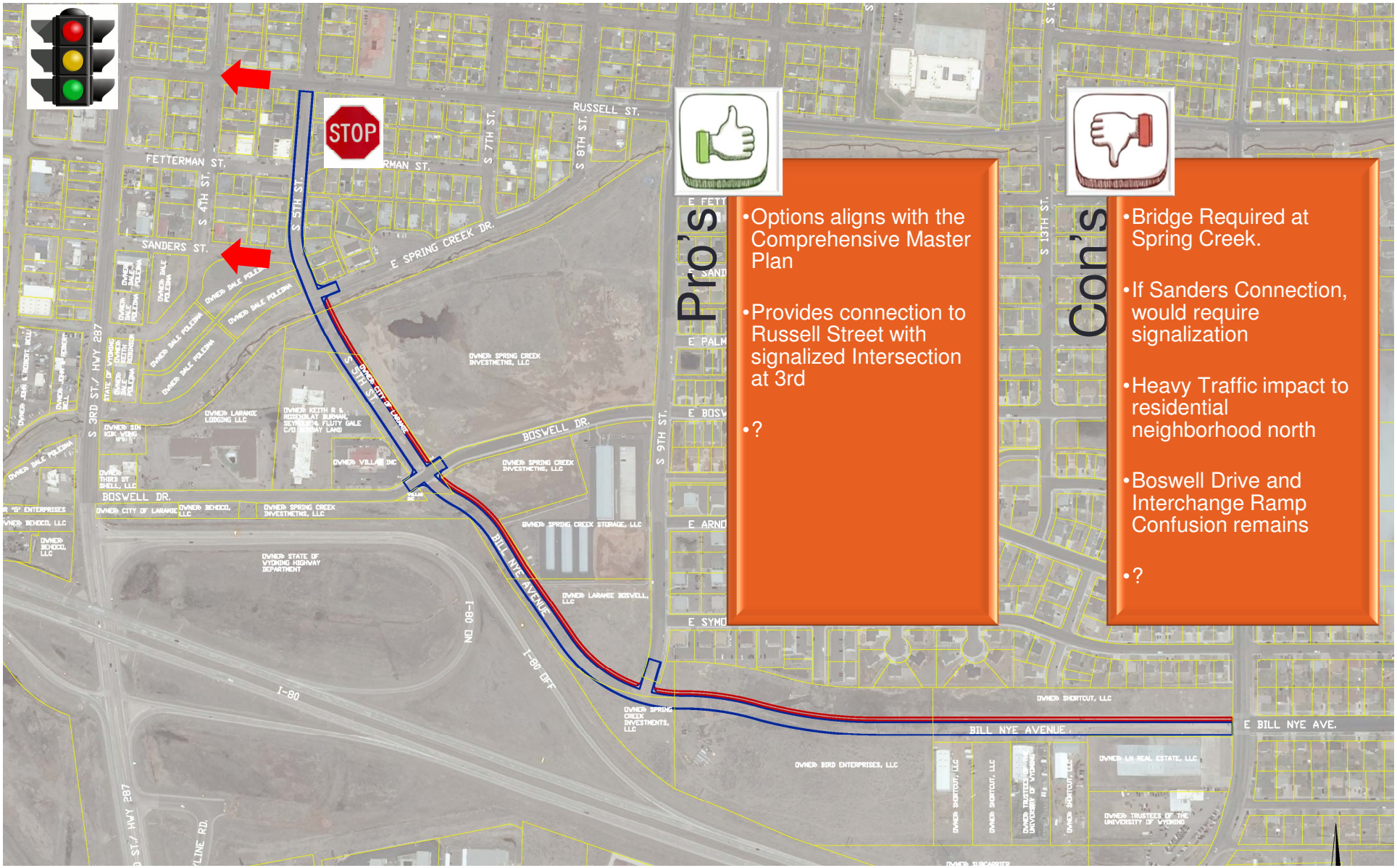
Possible Alternatives for Public Meeting

- 9th Street Connection
  - Bill Nye Avenue to 9th Street to Russell Street
- 5th Street Connection
  - Bill Nye Avenue to 5th Street to Russell Street
- Bill Nye Realignment
  - Bill Nye Avenue to 3rd Street
- RAB Bill Nye Avenue at Boswell
  - RAB Bill Nye Avenue at Boswell Avenue

9th Street Connection



5th Street Connection

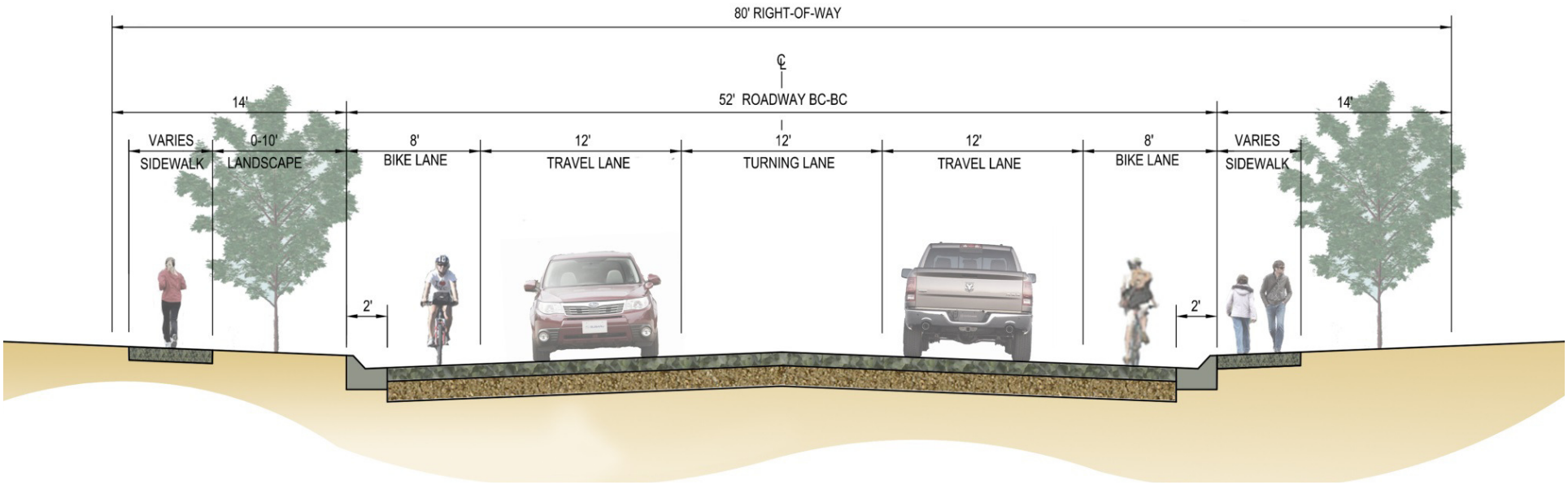


Bill Nye Realignment

RAB Boswell Combined w/ WBL Off Ramp and EBL On Ramp

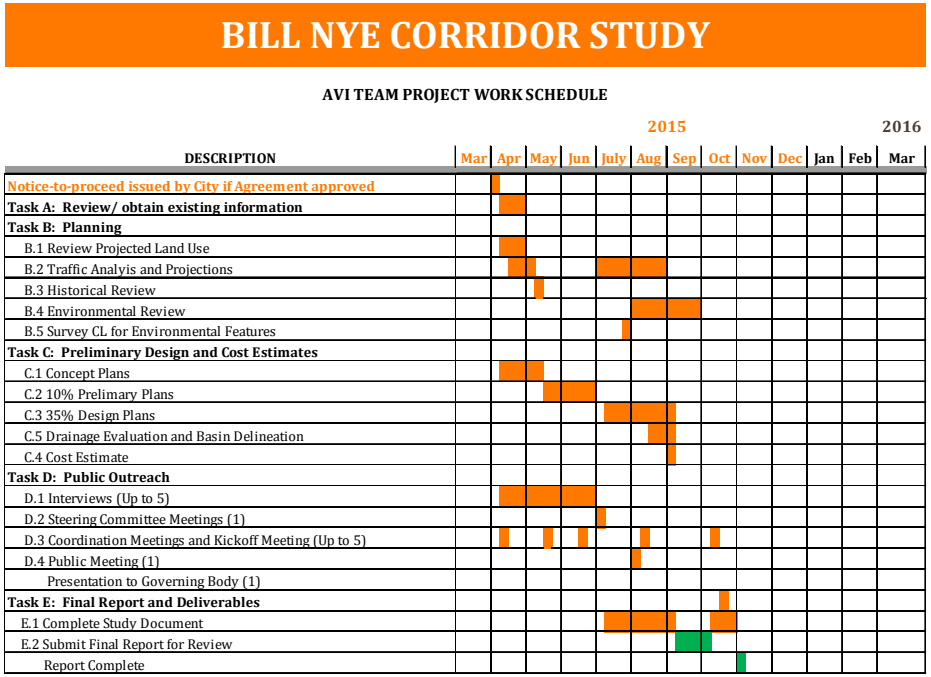
Other Brainstorm Ideas

Conceptual Typical Section?



Where do we go from here?

- Refine Options
- Conduct Environmental Review
- Set Tentative Date for Steering Committee Meeting #2
- Set Tentative Date for Public Meeting (1)



BILL NYE AVENUE CORRIDOR STUDY KICK OFF MEETING

SEPTEMBER 22, 2015 @10:00 A.M.

•LIST OF ATTENDEES •

ENGINEERING
PLANNING
SURVEYING
PC

NAME	COMPANY	EMAIL	PHONE/ CELL
Tom Cobb	AVI	cobb@avipc.com	970-214-6542
Jake Wilson	AVI	jwilson@avipc.com	719-684-5139
MARK WINGATE	WYDOT	mark.wingate@wyo.gov	777-4180
Eric Jaap	COL	ejaap@cityoflaramie.org	721-5341
PHIL PRATT	FHWA	philip.pratt@dot.gov	771-2951
RANDY GRIESBACH	WYDOT	randy.griesbach@wyo.gov	745-2116 760-4103
EARL SMITH	CoL	ESMITH@CITYOFCHEYENNE.OR	721-5241
Jeff Purdy	FHWA	Jeffrey.Purdy@dot.gov	771-2942
Charles Bloom	COL.	cbloom@	
Jake Wilson	AVI	jwilson@avipc.com	

BILL NYE AVENUE CORRIDOR STUDY

Steering Committee Meeting

September [illegible], 2015

LARAMIE

STS

ENGINEERING
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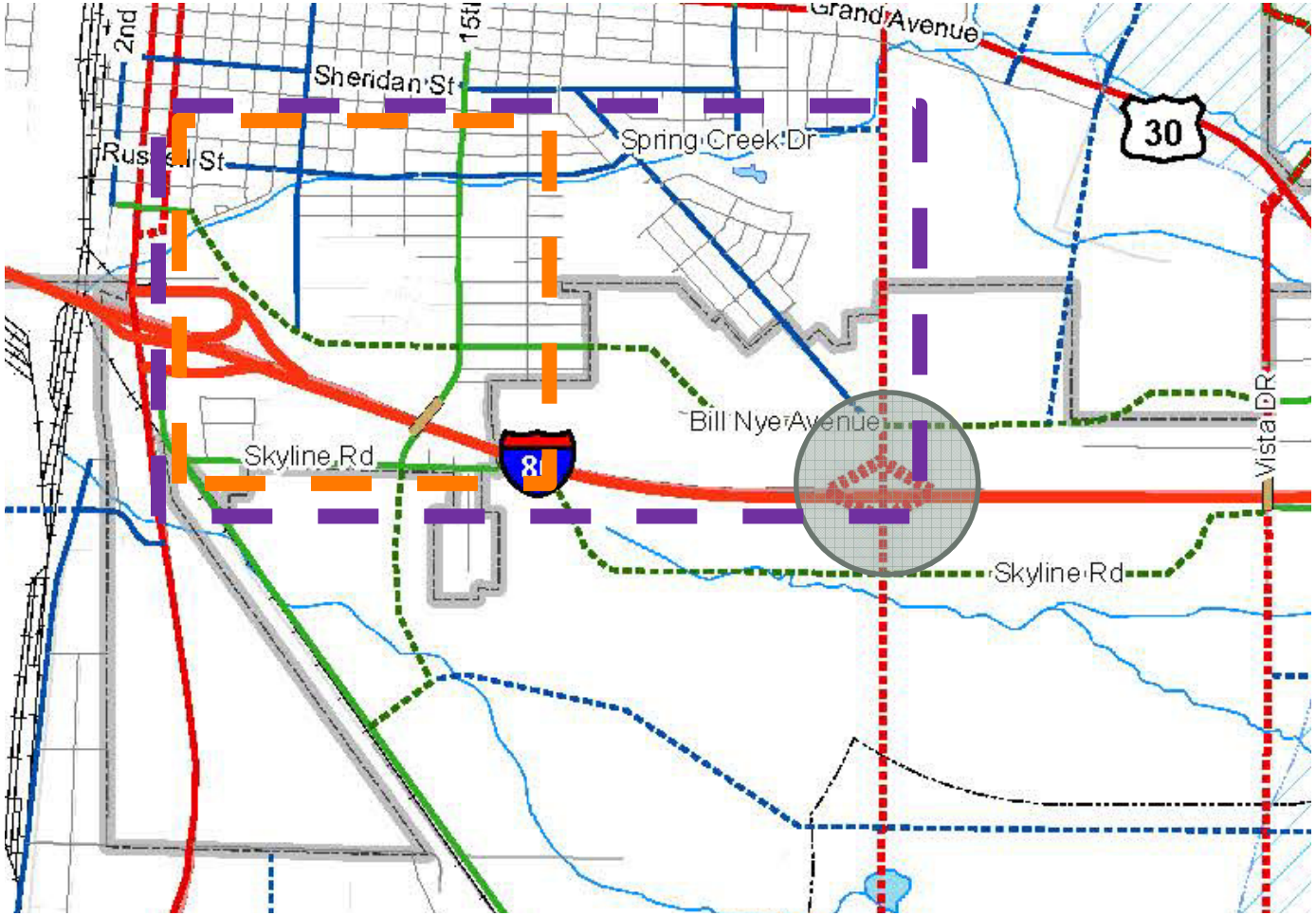
Agenda

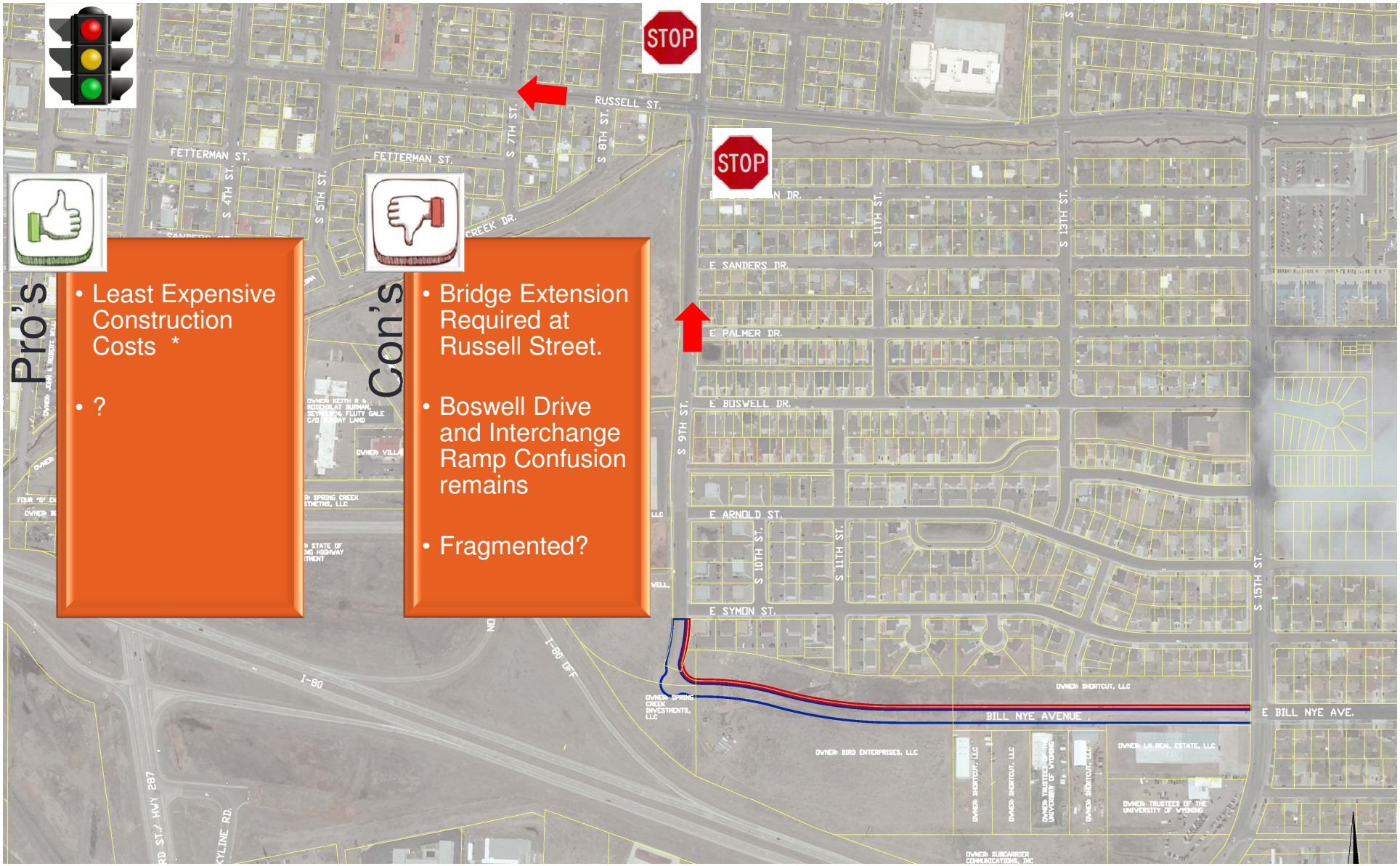
- Administrative
  - Data Needs
- Previous Alternatives
- Revised Proposed Alternatives
- Conceptual Typical Section
- Public Meeting
  - Logistics and Action Items
- Other
  - Set Next Steering Committee Meeting Date

Administrative

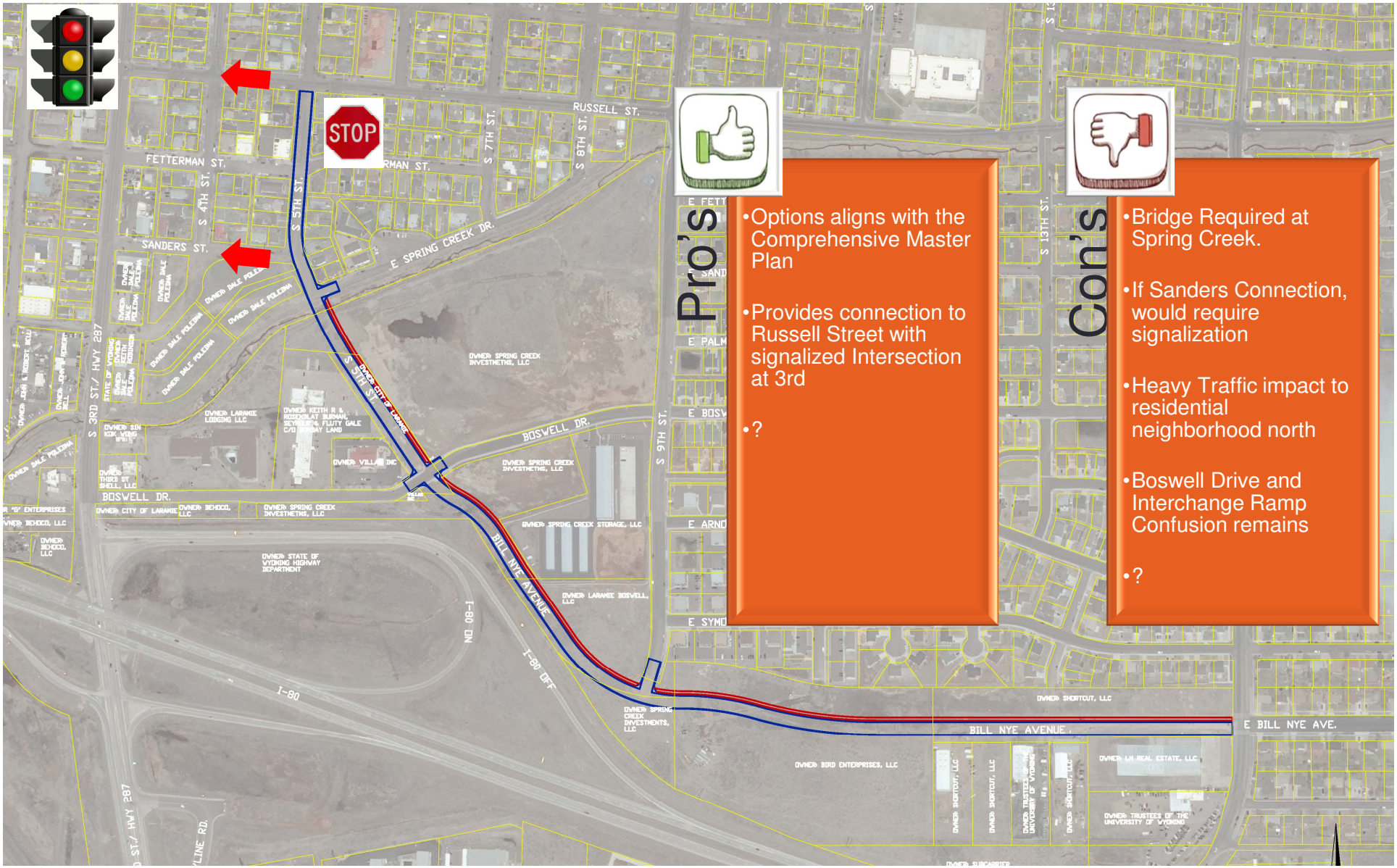
- Data Needs
  - Land Use Map in DXF Boundaries
    - **North:** Russell
    - **South:** I-80
    - **West:** 3rd Street
    - **East:**
      - If 30th Street Interchange
        - < 20 years: 15th Street or,
        - > 20 years: 30th Street



9th Street Connection



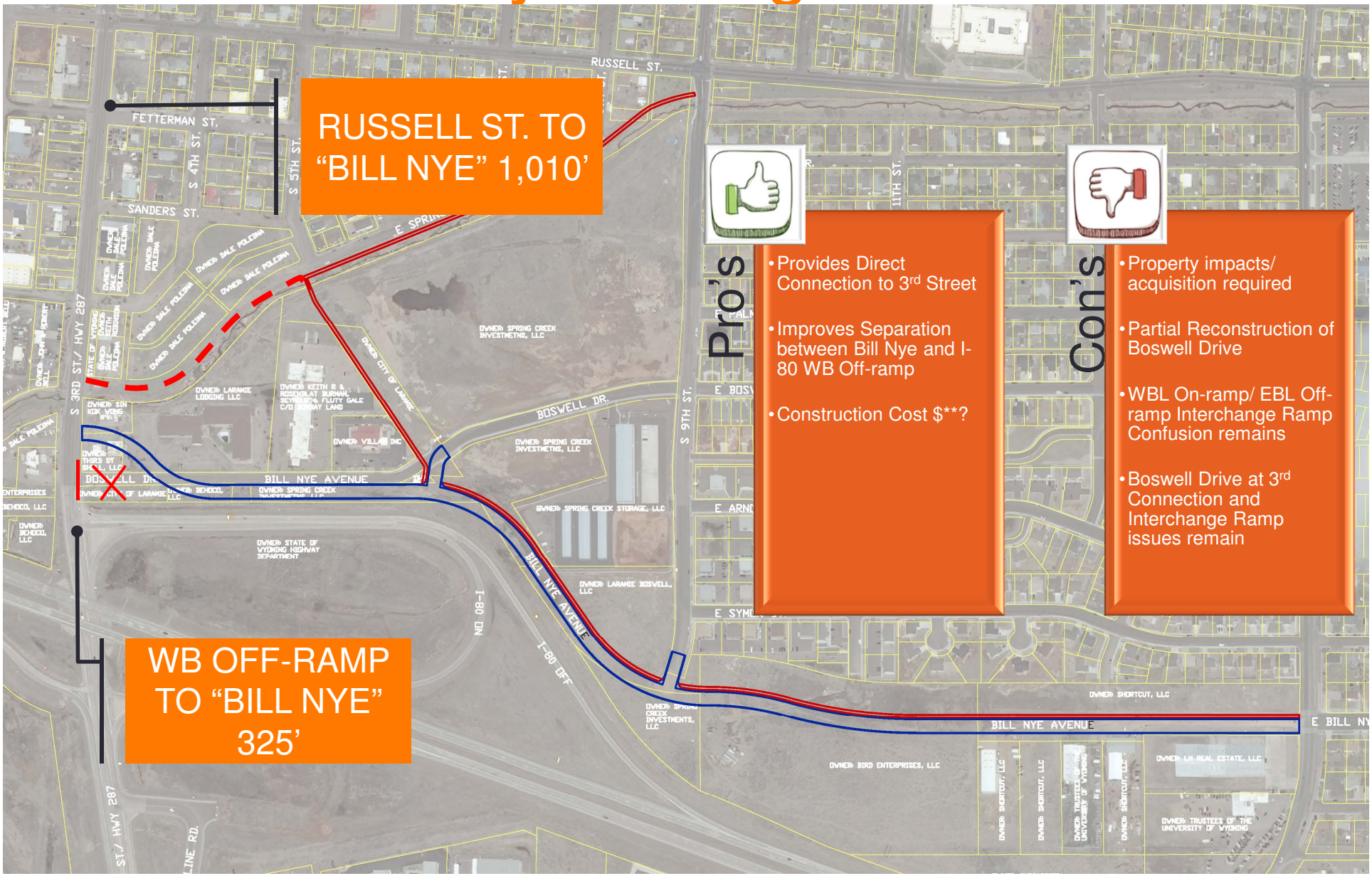
5th Street Connection



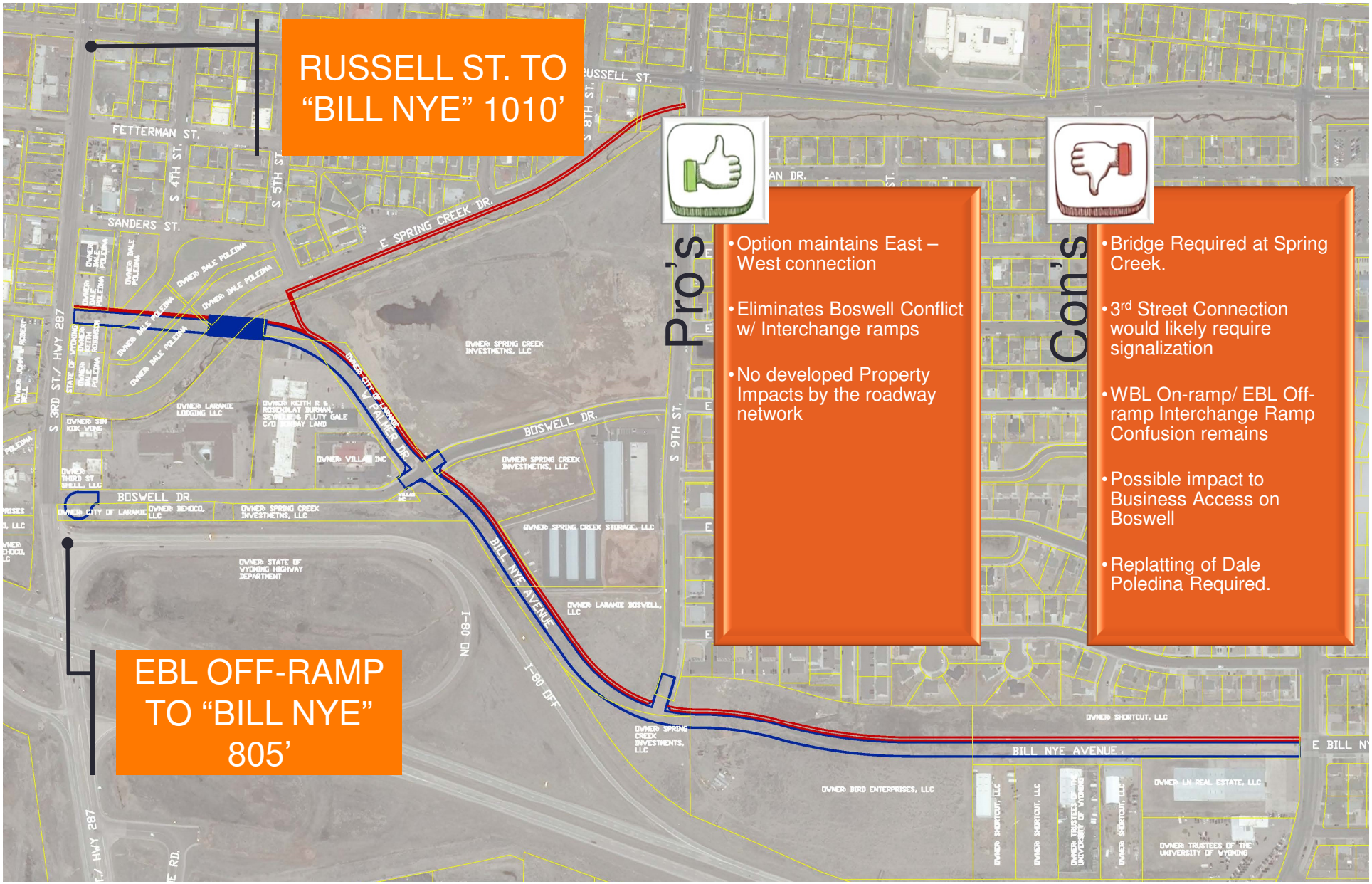
Bill Nye Realignment

RAB Boswell Combined w/ WBL Off Ramp and EBL On Ramp

Revised Bill Nye Realignment



E. Palmer Drive w/ Cul-de-sac Boswell



RAB Boswell Combined w/ WBL Off Ramp and EBL On Ramp

Pro's

- Segregates Commercial and Residential Traffic
- Eliminates WBL On-ramp/ EBL Off -ramp confusion
- Eliminates Boswell Drive and WBL On-ramp/ EBL Off -ramp confusion
- Provides redevelopment Potential

Con's

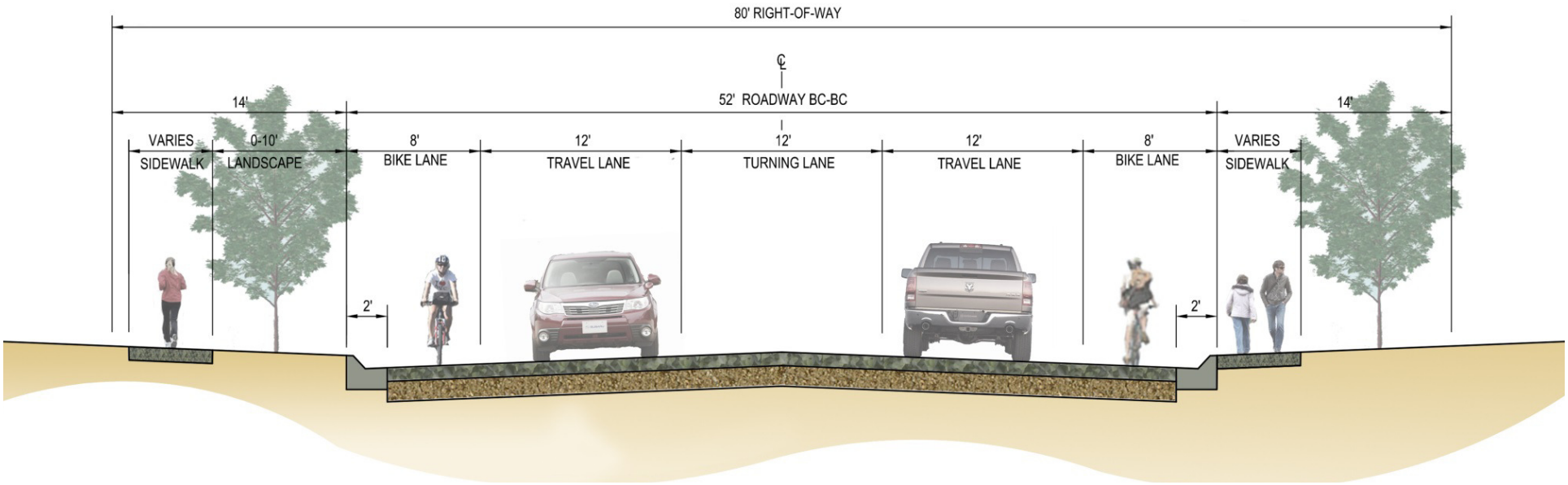
- Construction Alternative $****
- Partial Reconstruction of Boswell Drive
- Requires Access Control on West Leg of Boswell Drive (Jurisdictional Change)
- Need to provide additional documentation modification improves operation of interstate to FHWA

Other Ideas?

RUSSELL ST.
FETTERMAN ST.
FETTERMAN ST.
S 4TH ST.
S 5TH ST.
S 7TH ST.
S 8TH ST.
SANDERS ST.
E SPRING CREEK DR.
S 3RD ST./ HWY 287
BOSWELL DR. TO 3RD STREET
E FETTERMAN DR.
S 11TH ST.
S 13TH ST.
E SANDERS DR.
E PALMER DR.
E BOSWELL DR.
S 9TH ST.
E ARNOLD ST.
S 10TH
S 11TH ST.
S 15TH ST.
E SYMON ST.
I-80 ON
I-80 OFF
I-80
BILL NYE AVENUE
E BILL NYE AVE.
S 3RD ST./ HWY 287
SKYLINE RD.

Description	City of Laramie	Other
	Arterial	Principal Arterial
Number of Lanes (Width)	2(12')	4-6 (12')
Design Speed		50 mph
Design Vehicle	-	WB-67
Parking	none	none
Roadway Width (BC-BC)	68' – 9"	76'
Sidewalk/ Pedestrian Area	5'	6'
Parkway/ Tree Lawn	10'-71/2"	8'
Shoulder		6'
Daily Traffic Volume (VPD)		15,000 – 32,000 4-Lane

Conceptual Typical Section?



Public Meeting

- October 22, 2015 at Albany County Library
- 5:00 p.m. to 7:00 p.m. with Presentation at 5:15 p.m.
- Action Items:
  - Reserve Library
  - Advertisement
    - Newspaper
    - Post Card?
    - Other
    - Comment Card

Other

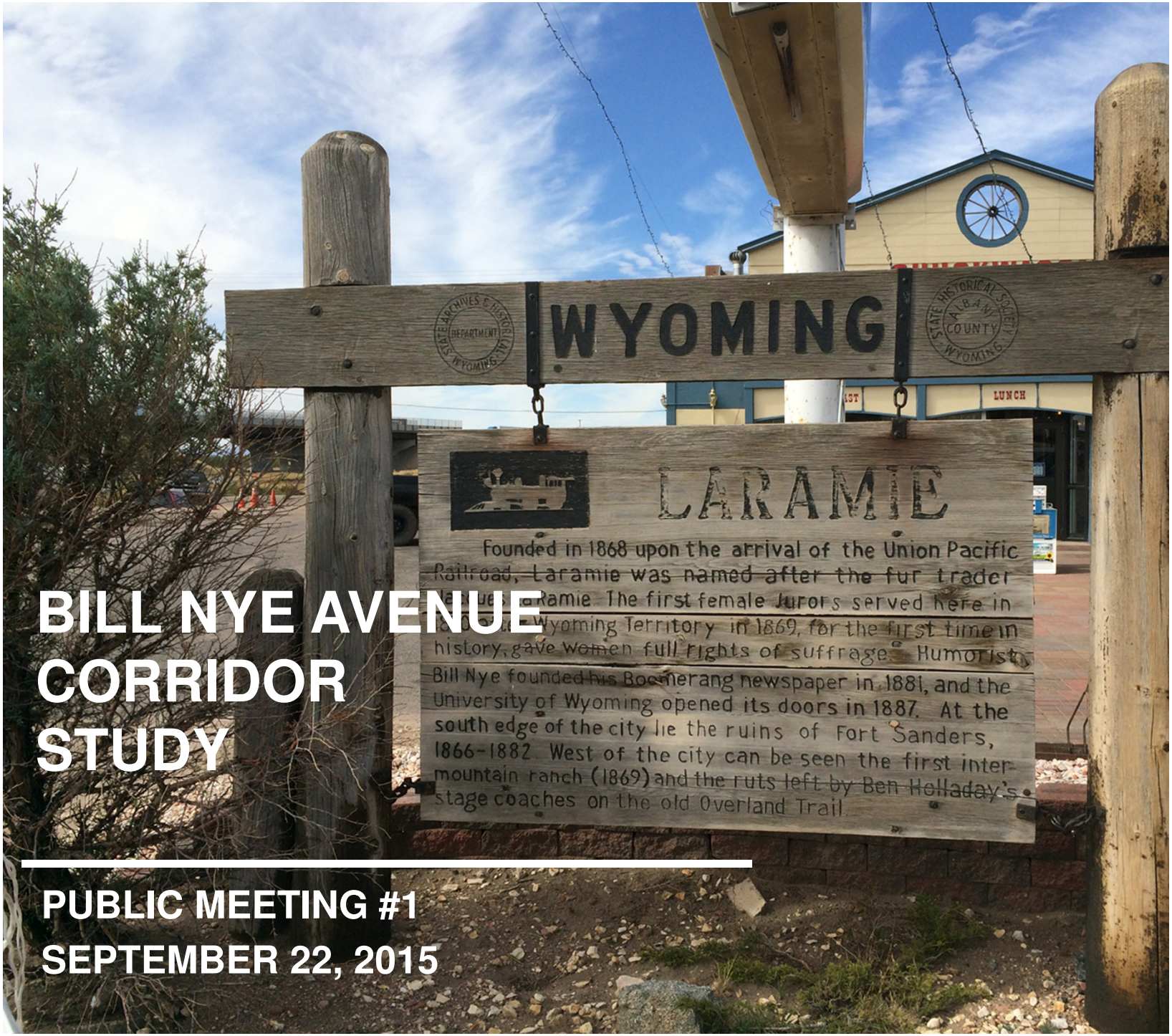
- Next Meeting of Steering Committee?
- Monday, October 19, 2015, 10:00 a.m. ?
  - Presentation for Public Meeting
  - Comment Card
  - Final Exhibits

BILL NYE AVENUE CORRIDOR STUDY KICK OFF MEETING

October 19, 2015 @10:00 A.M.

•LIST OF ATTENDEES •

NAME	COMPANY	EMAIL	PHONE/ CELL
Tom Cobb	AVI	cobb@avipc.com	307.637.6017
Brad Emmons	AVI	Emmons@avip.com	307.637.6017
Jeff Purdy	FHWA	Jeffrey.Purdy@dot.gov	307-771-2942
EARL SMITH	C.L	ESMITH@CITYOFLARAMIE.ORG	307-721-5241
PAT PERSSON	WYDOT	pat.persson@wyo.gov	307 745 2100
Eric Jaap	COL	ejaap@cityoflaramie.org	307-721-5345
Kevin McCoy	WYDOT	Kevin.McCoy@wyo.gov	307-777-4178
PHIL PRATT	FHWA	philip.pratt@dot.gov	307-771-2951
Tom Dethoff	WYDOT	tom.dethoff@wyo.gov	745-2100
Randy Hunt	COL	rhunt@cityoflaramie.org	721-5288
Charles Bloom	CVL	"	"



BILL NYE AVENUE CORRIDOR STUDY

PUBLIC MEETING #1

SEPTEMBER 22, 2015

LARAMIE 1868

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Agenda

- Introductions
- Study Area
- Goals and Objectives
- Project Schedule
- Identified Constraints
- Proposed Conceptual Alternatives
- Proposed Roadway Typical Section
- Adjourn to Workshop Areas

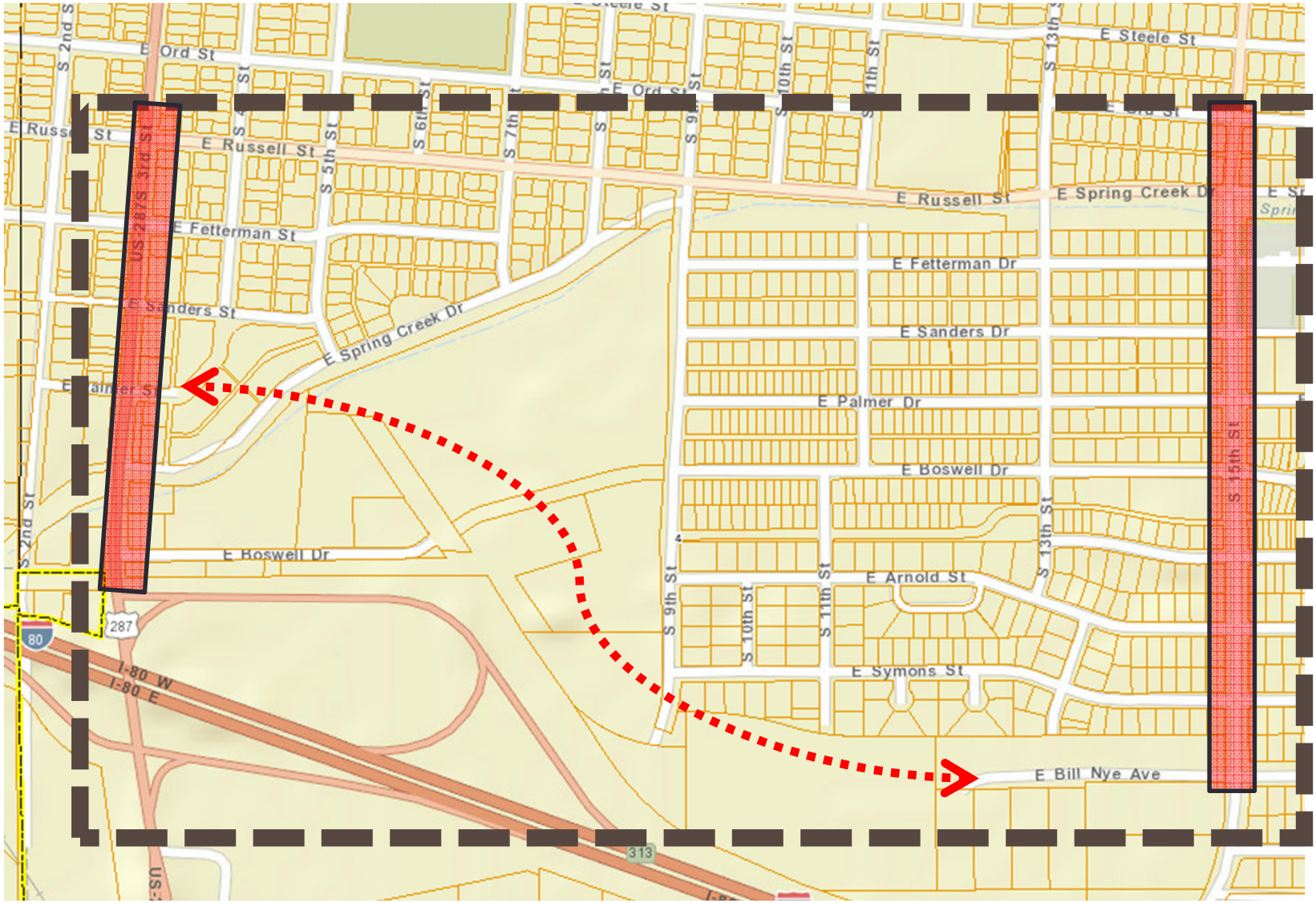
Introductions

Tom Cobb, P.E.
Project Manager

Brad Emmons, A.I.C.P.
Principal-in-charge
Planning

Jake Wilson, P.E.
Engineer

Study Area


E Ord St
E Steele St
E Russell St
E Fetterman St
E Sanders St
E Spring Creek Dr
E Palmer St
E Boswell Dr
E Arnold St
E Symons St
E Bill Nye Ave
E Fetterman Dr
E Sanders Dr
E Palmer Dr
E Boswell Dr
E Russell St
E Spring Creek Dr
S 2nd St
S 5th St
S 6th St
S 7th St
S 9th St
S 10th St
S 11th St
S 13th St
S 15th St
US 287 S 3rd St
80
287
I-80 W
I-80 E
313

Purpose, Objective, and Goals

- **Purpose**
  - Create a comprehensive and practical planning document that guides and promotes future development of the corridor and surrounding area.
- **Objective**
  - Develop a realistic preferred alignment for Bill Nye Avenue between 3rd Street and 15th Street.
- **Goals**
  - Promotes safety
  - Minimizes long term maintenance
  - Sensitive to current function and property owners
  - Serves all transportation users
  - Encourages economic development

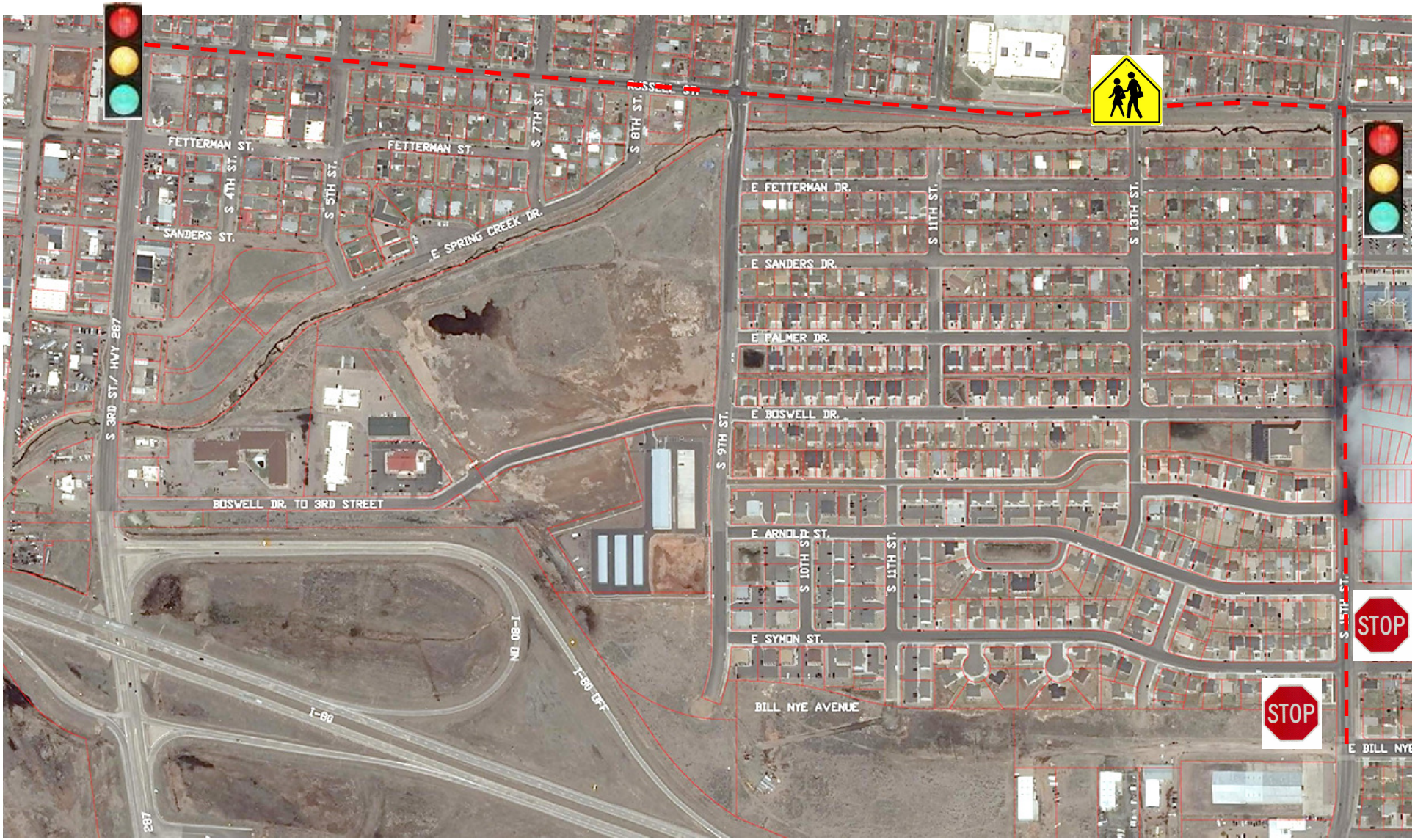
Project Schedule

Activity	Tentative Schedule
Notice to proceed and Kick-off Meeting	Begin Project, June 9, 2015
Adjacent Stakeholder Meeting(s)	July 2, 2015
Meeting w/ FHWA	July 9, 2015
Develop Preliminary Alternatives	July – August, 2015
Steering Committee Meetings	August 24, September 22, and October 19, 2015
First Public Meeting	**October 20, 2015**
Refine Alternatives	November, 2015
Complete Draft Plan	November – December, 2015
Submit Draft Plan City of Laramie	**January, 2016**
Revise Draft Plan	**February, 2016**
Presentation to Governing Body	**March, 2016**

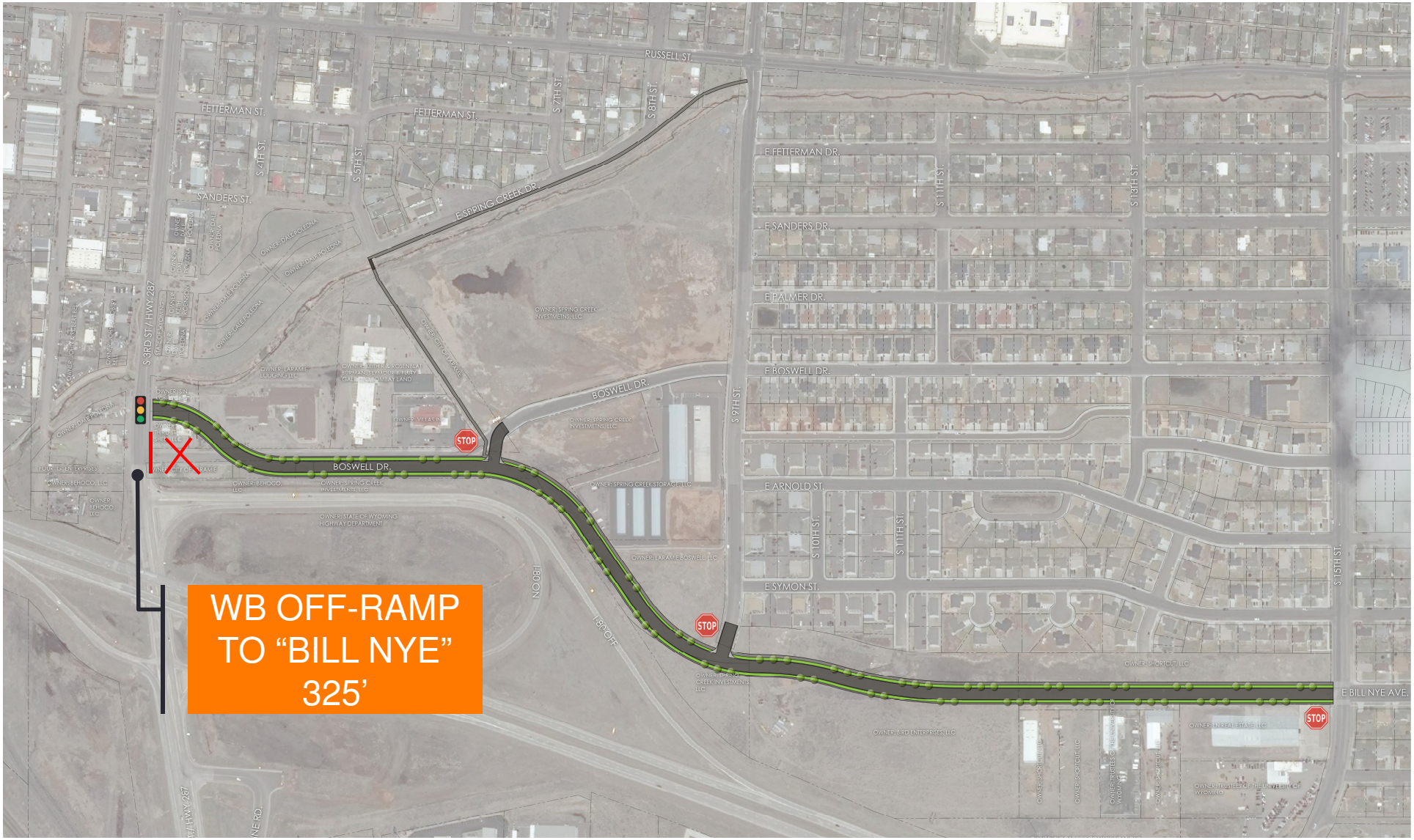
Identified Constraints

- **Purpose**
  - Create a comprehensive and practical planning document that guides and promotes future development of the corridor and surrounding area.
- **Objective**
  - Develop a realistic preferred alignment for Bill Nye Avenue between 3rd Street and 15th Street.
- **Goals**
  - Promotes safety
  - Minimizes long term maintenance
  - Sensitive to current function and property owners
  - Serves all transportation users
  - Encourages economic development

Do Nothing – Utilize 15th Street



Revised Bill Nye Realignment

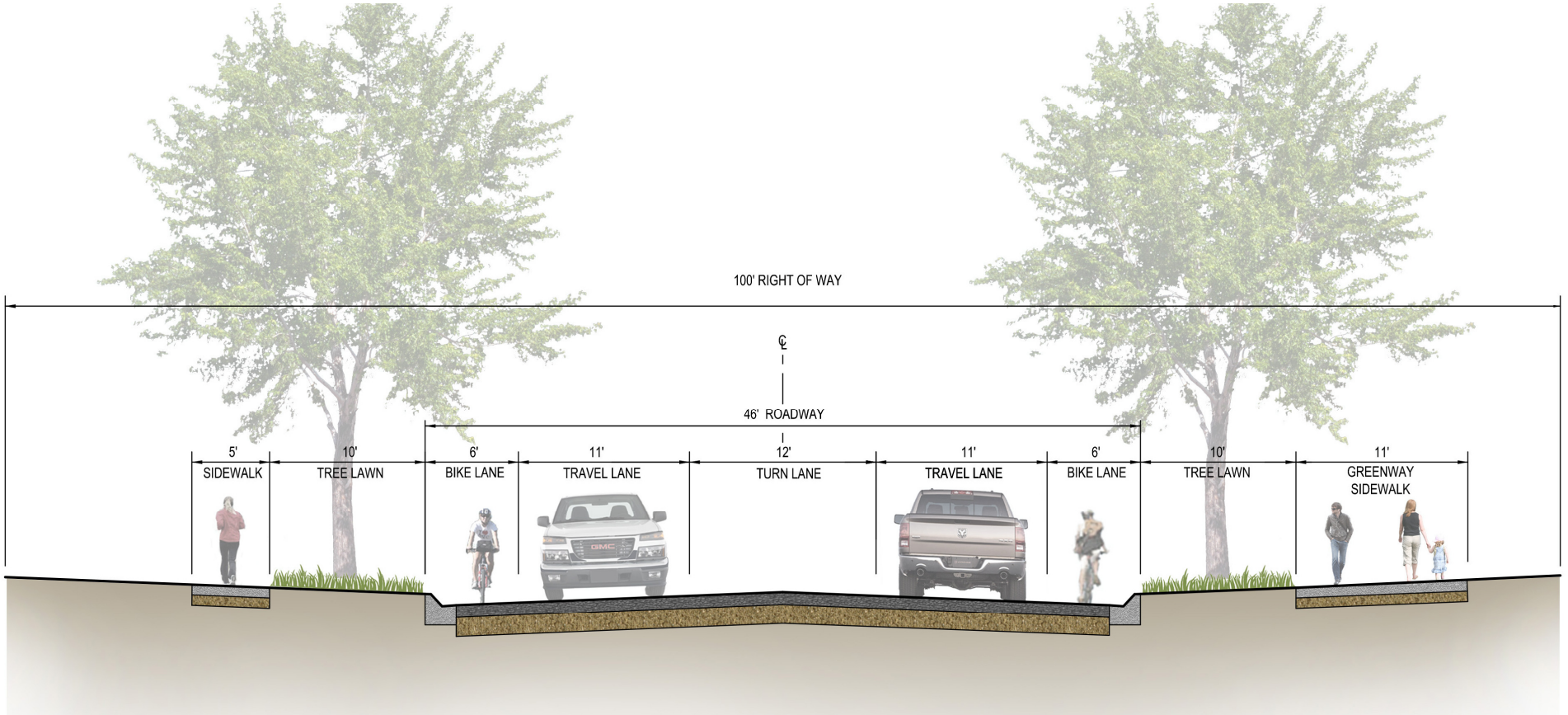


E. Palmer Drive w/ Cul-de-sac Boswell

RAB at 3rd/ Boswell/ I-80 WB Ramps

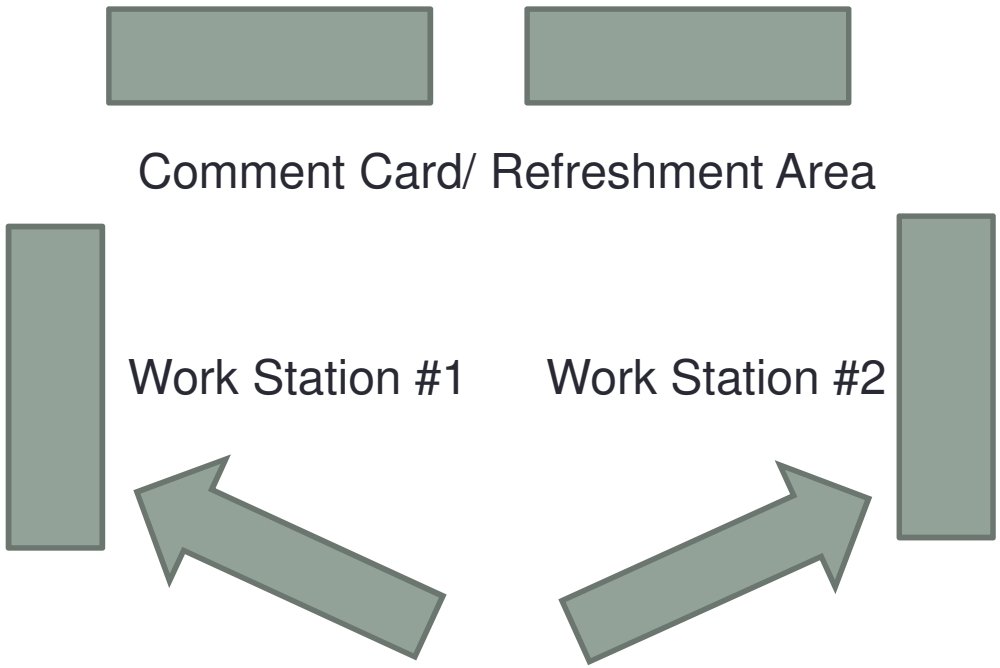
RAB at 3rd/ Boswell/ I-80 WB Ramps

Conceptual Typical Section



Work Station Areas

- Two Identical Work Stations
  - **Tables**
    - Aerial photo with street views
- Comment Card/ Refreshment Area



BILL NYE AVENUE CORRIDOR STUDY KICK OFF MEETING

January 21, 2015 @ 2:00 P.M.

• LIST OF ATTENDEES •

ENGINEERING
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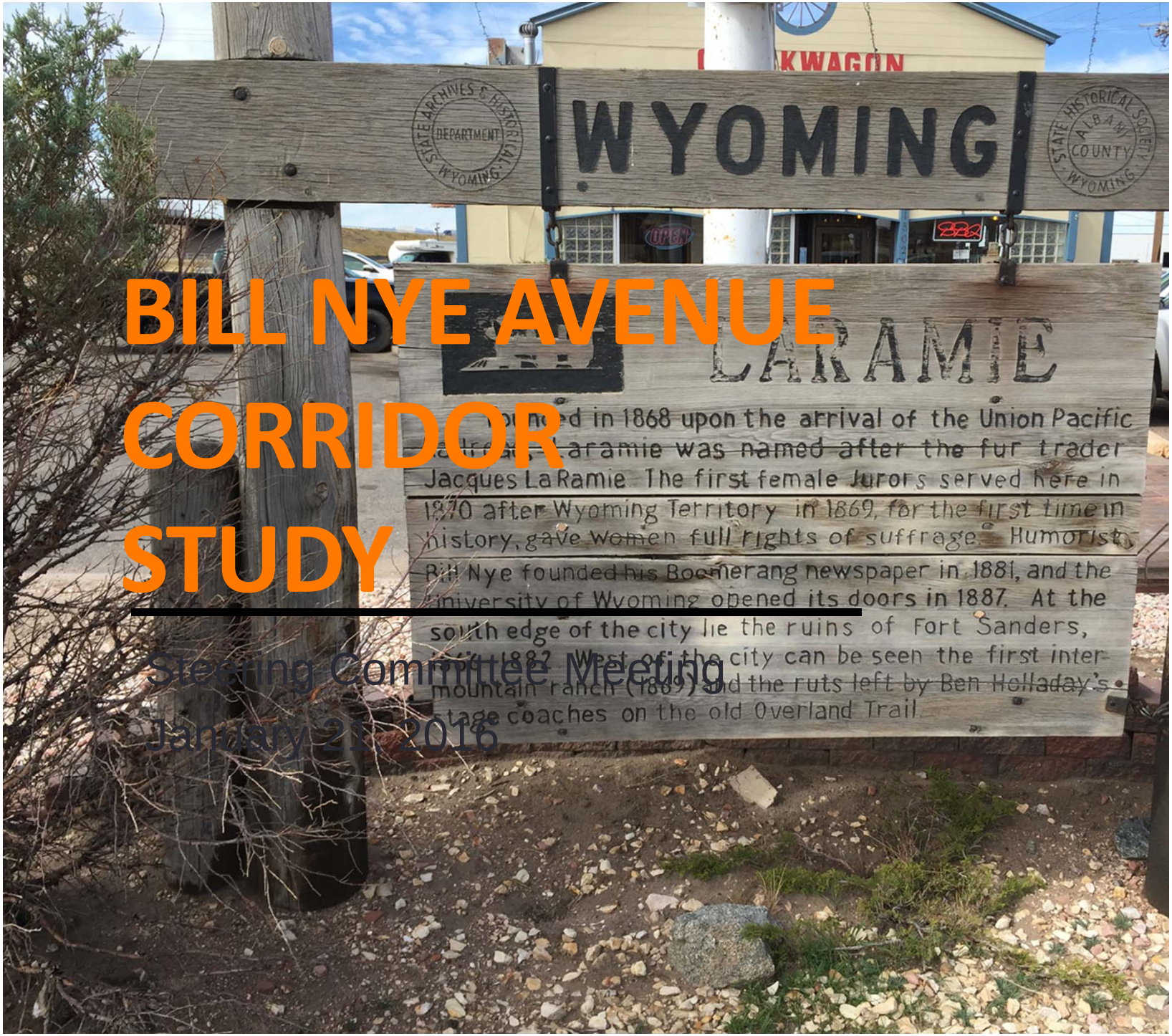
PC

NAME	COMPANY	EMAIL	PHONE/ CELL
Tom Cobb	AVI	cobb@avipc.com	307.637.6017
Brad Emmons	AVI	Emmons@avip.com	307.637.6017
Randy Hunt	City of Laramie	rhunt@ cityoflaramie.org	307-721-5288
Charles Bloom	" "	cbloom@ " " "	721-5232
MARK WINGATE	WYDOT	mark.wingate@wyo.gov	307-777-4180
Eric Jaap	COL	ejaap@cityoflaramie.org	307-721-5345
EARL SMITH	COL	ESMITH@CITYOFLARAMIE.ORG	307-721-5241
Brad Emmons			



BILL NYE AVENUE CORRIDOR STUDY

Steering Committee Meeting

January 21, 2016

LARAMIE

STS

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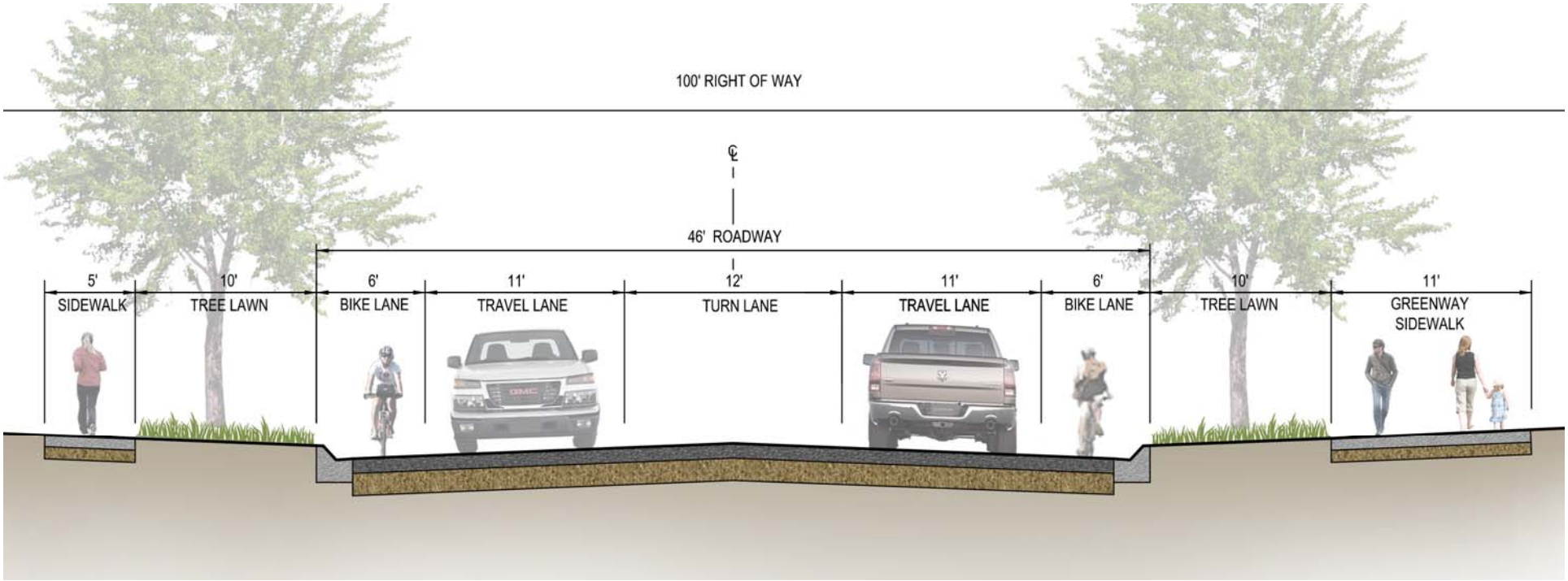
PC

Agenda

- Presentation Exhibits
- What we heard Public Meeting No. 1
- Discussion on recommendations
  - Conceptual Typical Section
  - Alignment Alternatives
- Where do we go from here?
- Other
  - Council Work Session Needs
  - Action Items?

Conceptual Typical Section



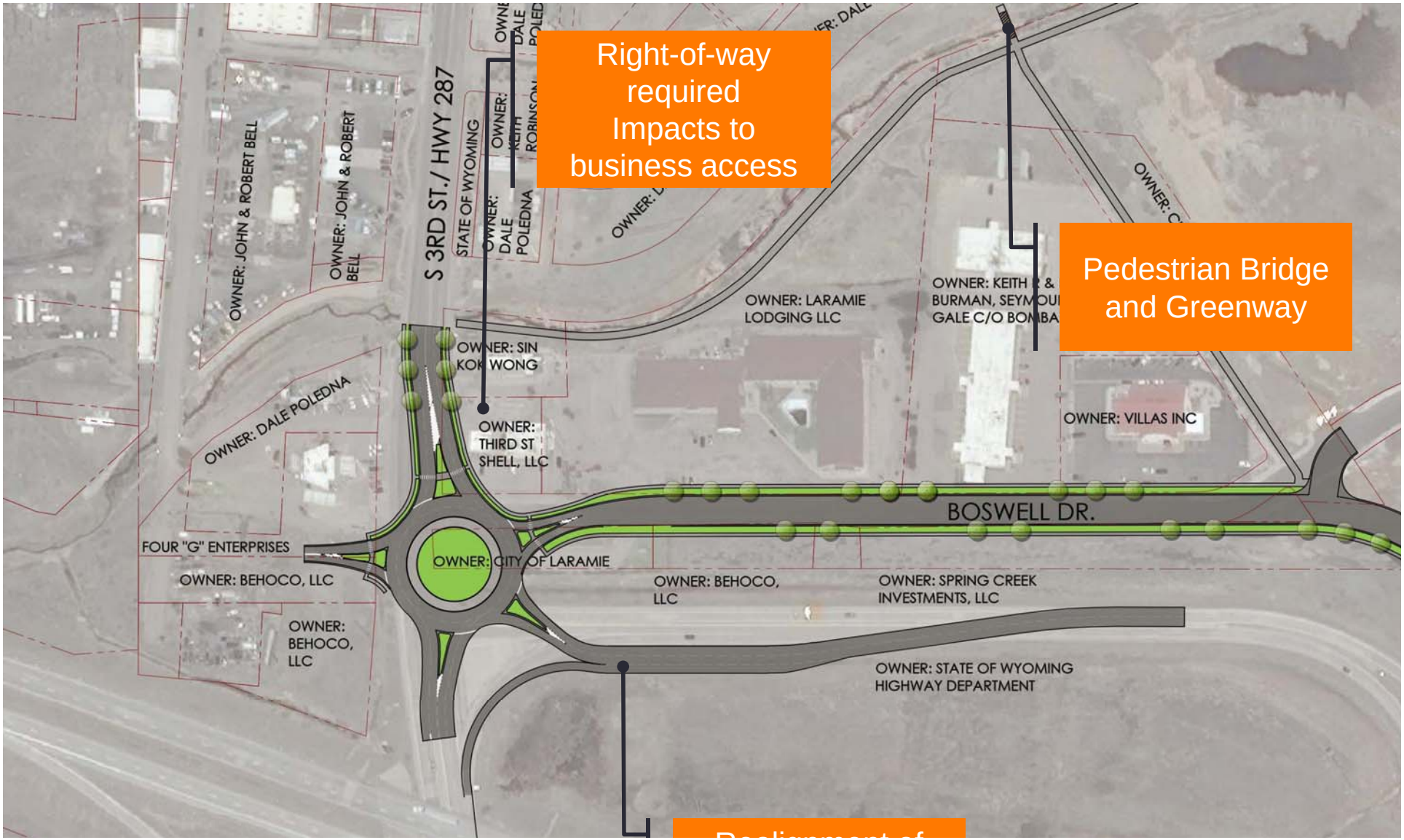
Do Nothing – Utilize 15th Street

Revised Bill Nye Realignment

E. Palmer Drive w/ Cul-de-sac Boswell

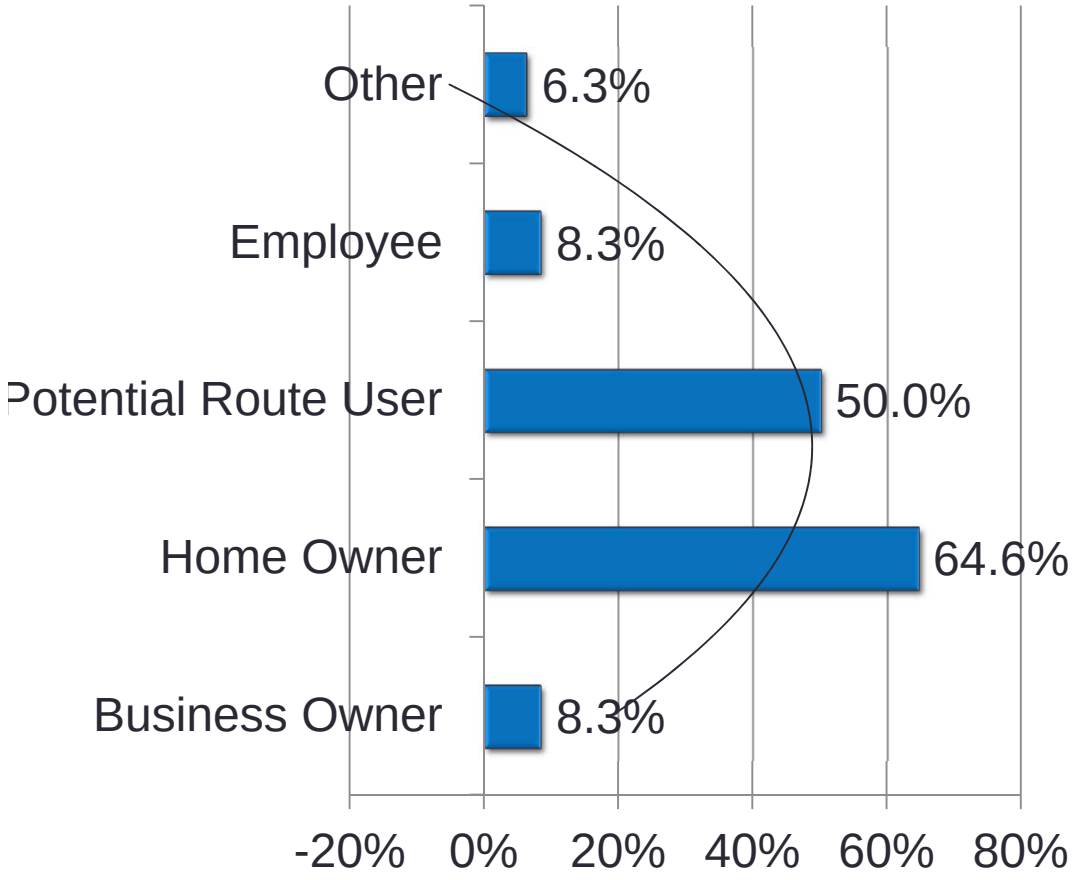
RAB at 3rd/ Boswell/ I-80 WB Ramps

RAB at 3rd/ Boswell/ I-80 WB Ramps



Public Meeting One: Summary

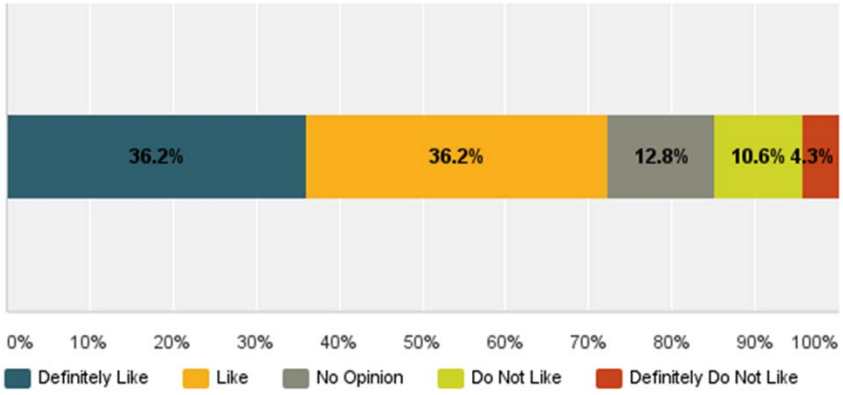
- Conducted October 21, 2015
- Approximately 25 participants
- 48 Comment Card Responses (192.0%)
- Who Attended?

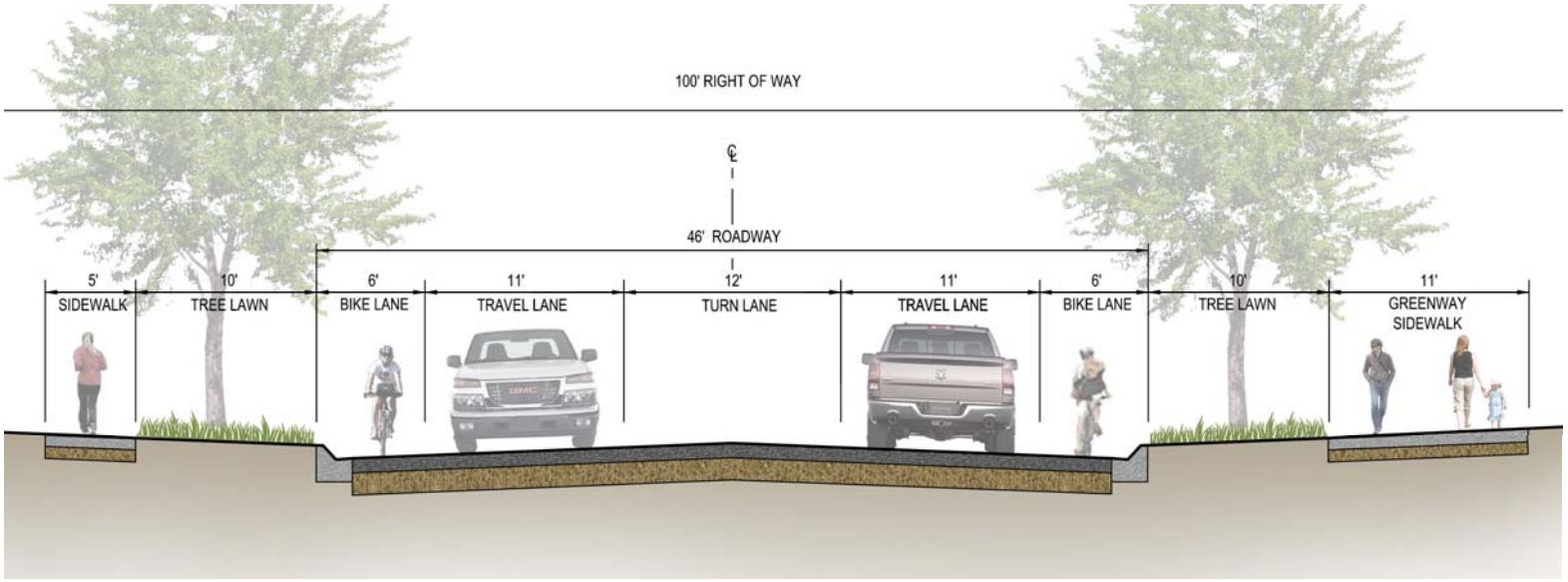


What we heard?

Q3 Please rate the Bill Nye Avenue Conceptual Typical Section shown above.

Answered: 47 Skipped: 1





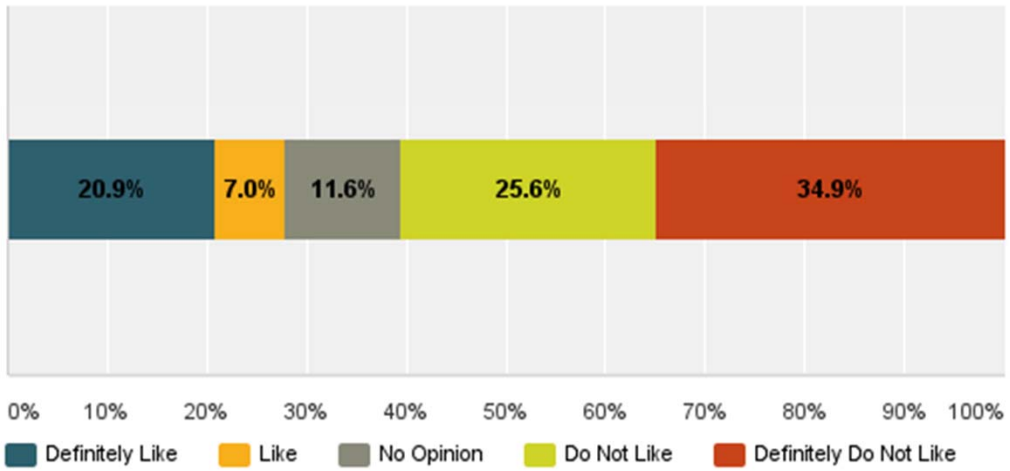
Do Nothing – Utilize 15th Street

Spring Creek Elementary Pedestrian ing at 13th Street

sidential nborhood

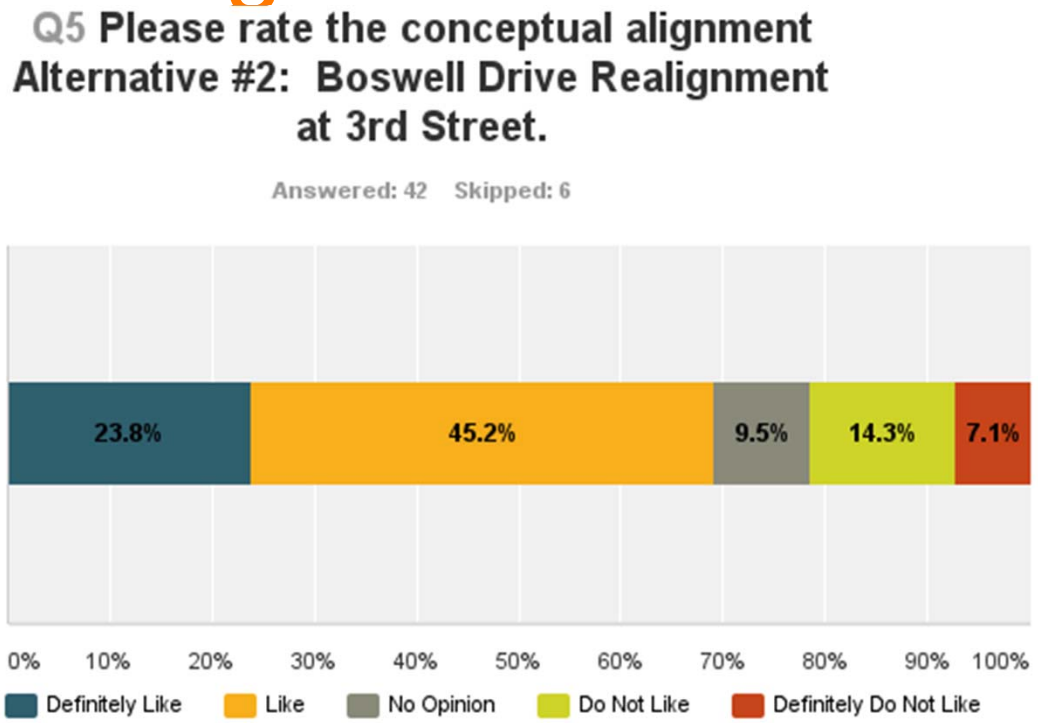
Q4 Please rate the conceptual alignment Alternative #1: "Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Road shown above.

Answered: 43 Skipped: 5



Revised Boswell Realignment

Right-of-way required Impacts to business



WB Off-Ramp to Bill Nye 325’

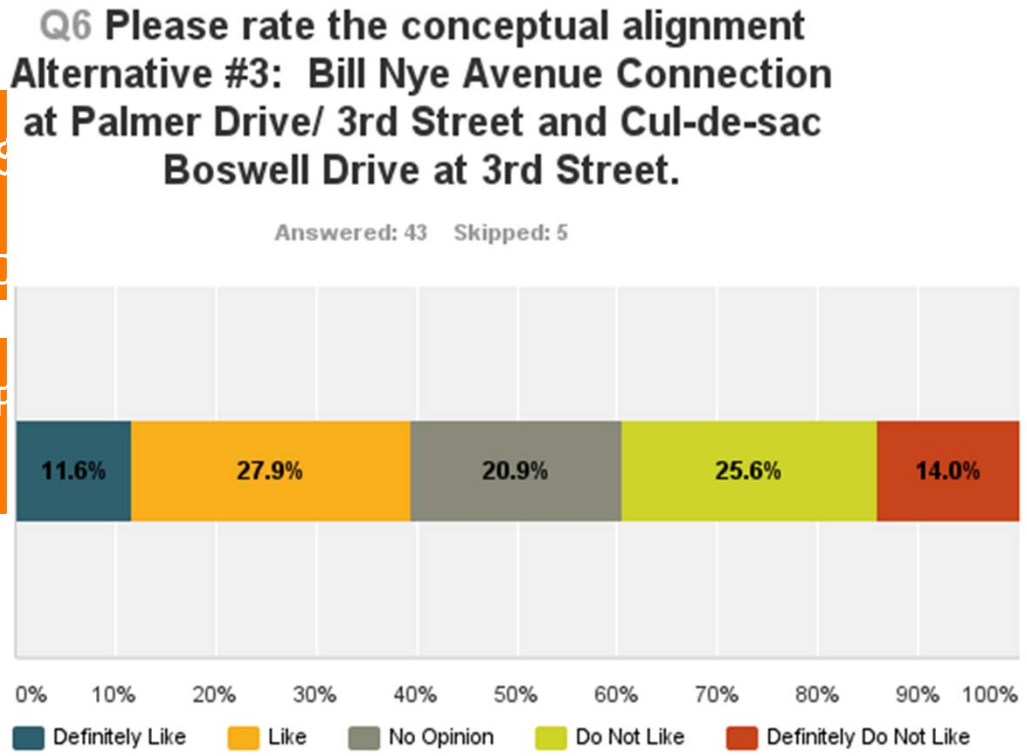
Right-of-way Required

E. Palmer Drive w/ Cul-de-sac Boswell

Right-of-way required

Cul-de-sac Bowell Drive at 3rd Street

Right-of-way required



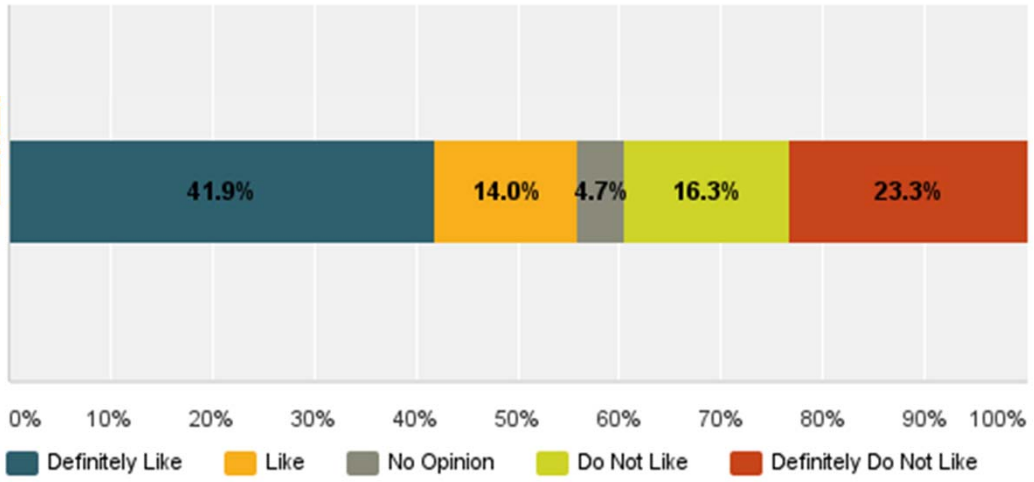
RAB at 3rd/ Boswell/ I-80 WB Ramps

Right-of-way required
Impacts to business access

Pe
a

Q7 Please rate the conceptual alignment Alternative #4: Roundabout at 3rd Street, Boswell Drive, and Westbound I-80 Off and On-ramps.

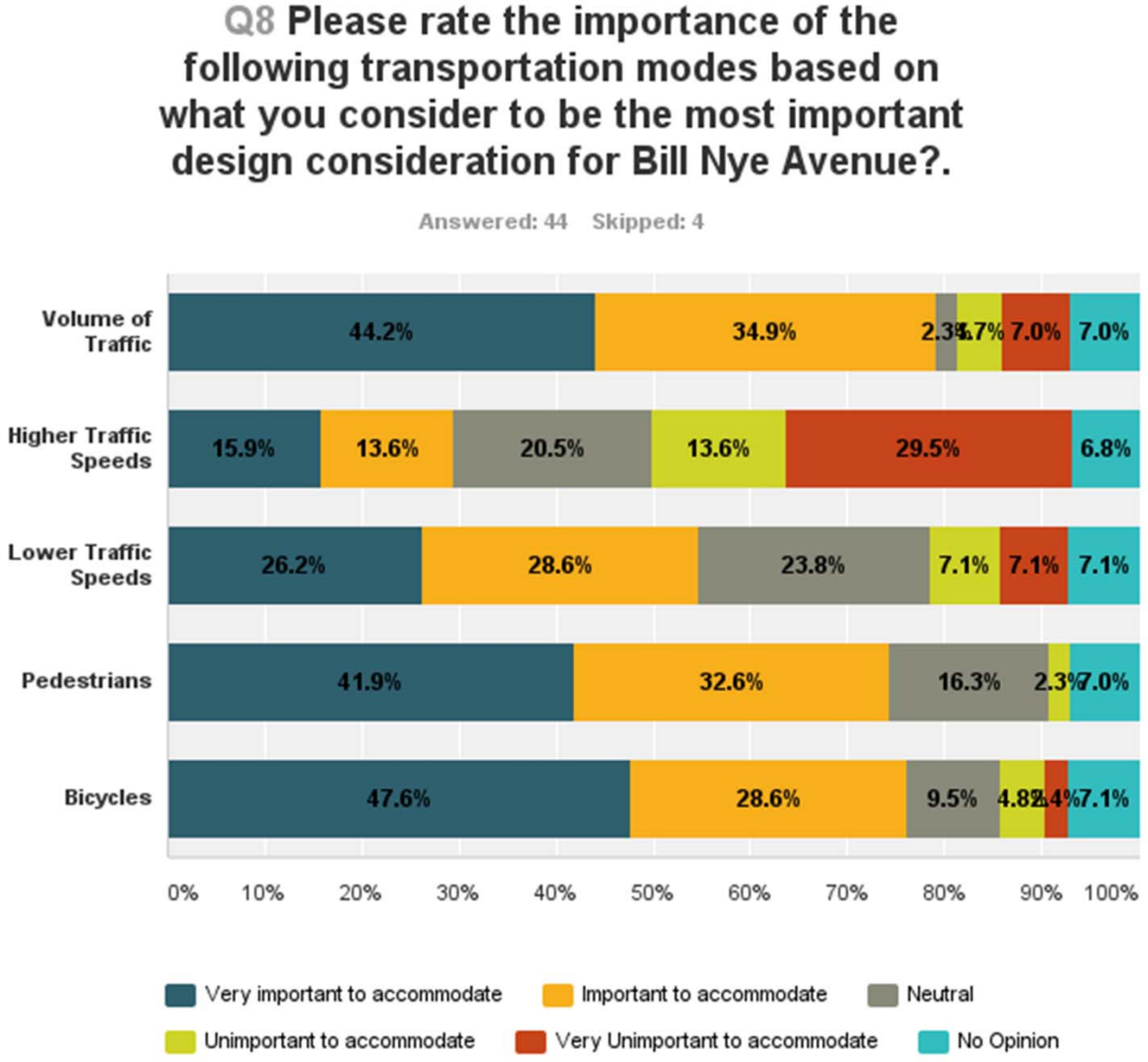
Answered: 43 Skipped: 5



Realignment of WB Off / On-ramps

Right-of-way required

What we heard?



What we heard?

- ***Do you have additional ideas, information, or other comments that you would like to provide at this time?***

  - “Please incorporate good lighting, beautification, PEDXING Stripes and warning signals at major intersections and include signage to direct travelers downtown as well as 16th street @ both South Street and Swanson Road. How about a bike lane on the west side of 16th and leave parking on the east side?”

What we heard?

- ***Do you have additional ideas, information, or other comments that you would like to provide at this time.***

  - “The current route for "Turner Drive" may work in 2 dimensions, but not in 3D. The Final Plat of Boulder Addition rubber stamped by all but one member is riddled with very serious errors which can get bulldozer drivers killed when they hit unmarked high pressure gas lines on the west side of the Turner Tract. Frankly, I'm very disappointed in the quality of work that the Urban Streets Advisory Committee has turned out since 1992 when they "rubber stamped" an atrocious, unbuildable "kinked" route for BNA which took out all the front yards on Whitman Street. The 1981 route for BNA was much better and still is. In 1999 two "interested parties" made the eastern extension of Hillside Drive disappear, despite the fact that it would--without requiring any grading--seamlessly go from Corthell Road to Boulder Drive, give Corthell Hill back its 2nd outlet, and give the poor LHS students a real way to get back home at the end of the school day. “

What we heard?

- ***Do you have additional ideas, information, or other comments that you would like to provide at this time.***

  - “It's important to find a solution so businesses will know the long-term plan for this location. “

  - “I am concerned about the safe of speed on such a long roadway-perhaps speed bumps @ pedestrian intersects? bicycles are very seasonal in Laramie. not sure how many bikes would just this roadway as far as it is from UW & downtown. It is very hard to walked on this gypsum-retains water, slippery - not sure the diagonal strip along Corona Village would be used. if sidewalk along Spring Creek is green belt, then ok-otherwise, there is already a sidewalk on the N side of Spring Creek from 5th to 9th.”

What we heard?

- ***Do you have additional ideas, information, or other comments that you would like to provide at this time.***

  - “As the community grows to the South, the traffic will continue to increase for those desiring to head to the North end of town (Turner Tract, HS, etc.) I highly recommend moving the I-80 entrance to go West, eliminating one of the major traffic confusion points. “

  - “I am not for options # 1 or 4. # 2 i liked the best.”

  - I do go out and run that area sometimes, and when the weather is warmer, i do bike and have a bicycle trailer to carry my child in, so i look at the routes in terms of what i can do riding, running/walking and driving and #2 i would feel better with. "

What we heard?

- ***Do you have additional ideas, information, or other comments that you would like to provide at this time.***

  - “A mixture of the roundabout and #3 would be best suited for the area.”
  - “I am not for options # 1 or 4. # 2 i liked the best.”
  - “This corridor should function as an arterial (access management). Separating vehicle and bicycle traffic should be considered.”
  - "I really like the round about.”

Where do we go from here?

Activity	Tentative Schedule
Council Work Secession	February 9, 2016; 6:00 p.m.
Draft Corridor Plan	February – March, 2016
Submit Draft Plan for Review	March 7, 2016
Final Draft	April, 2016?
Presentation to Governing Body	April, 2016?

Other Items

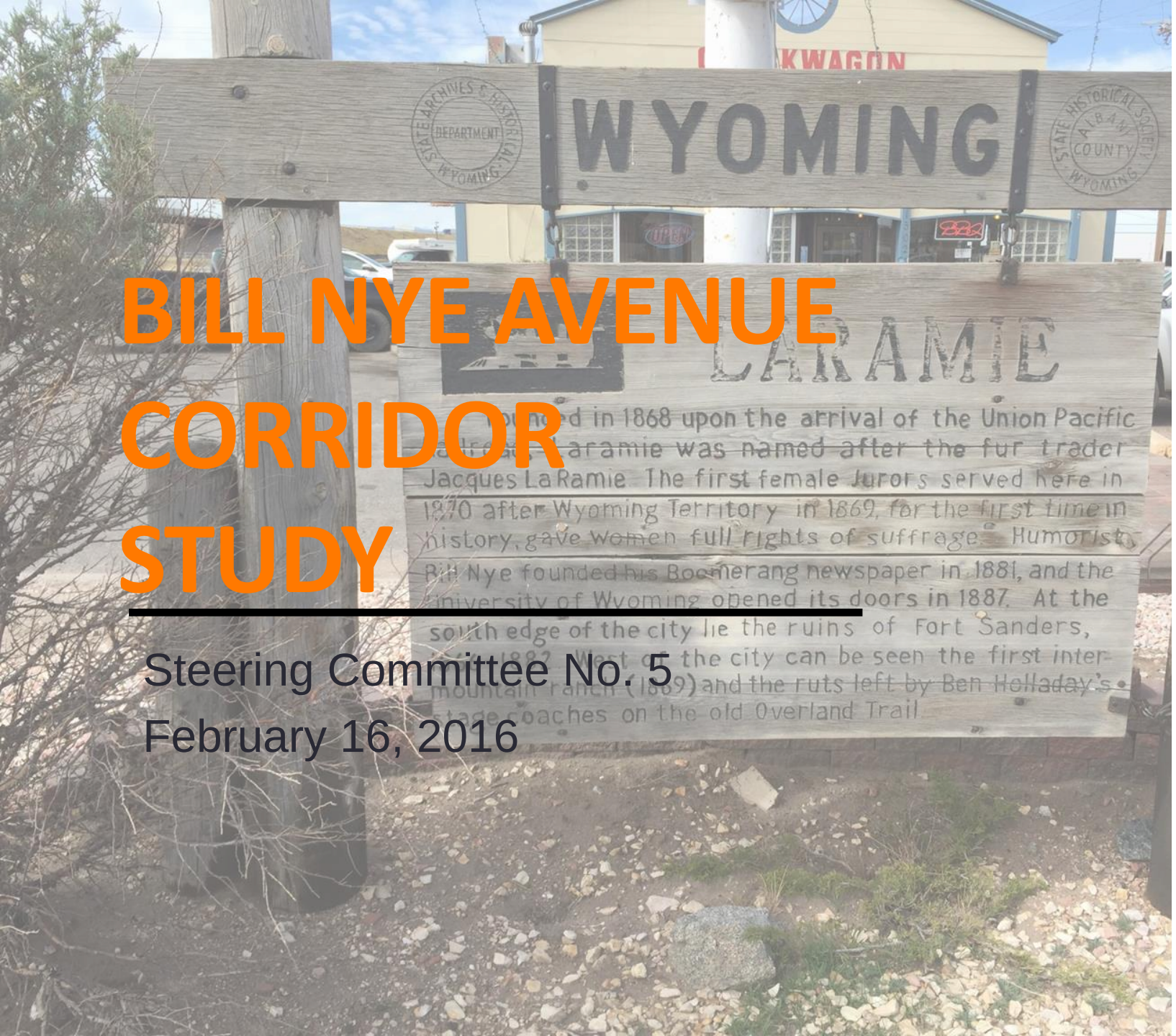
- Council Work Secession February 9, 2016
- Action Items

BILL NYE AVENUE CORRIDOR STUDY KICK OFF MEETING

February 16, 2016 @ 10:00 A.M.

•LIST OF ATTENDEES •

NAME	COMPANY	EMAIL	PHONE/ CELL
Tom Cobb	AVI	cobb@avipc.com	307.637.6017
Brad Emmons	AVI	Emmons@avip.com	307.637.6017
Joe Henderson	STS	joe@sustainabletrafficsolutions.com	303.589.6875
EARL SMITH	LARAMIE	ESMITH@CITYOFLARAMIE.ORG	307-721-5241
Eric Jaap	COL	ejaap@cityoflaramie.org	721-5345
Randy Hunt	COL	rhunt@cityoflaramie.org	721-5288
Kevin McCoy	WYDOT	Kevin.McCoy@wyo.gov	777-4178
Charles Bloom	COL	cbloom....	721.5232
PHIL PRATT	FHWA	philip.pratt@dot.gov	771-2951



BILL NYE AVENUE CORRIDOR STUDY

Steering Committee No. 5

February 16, 2016

LARAMIE

STS

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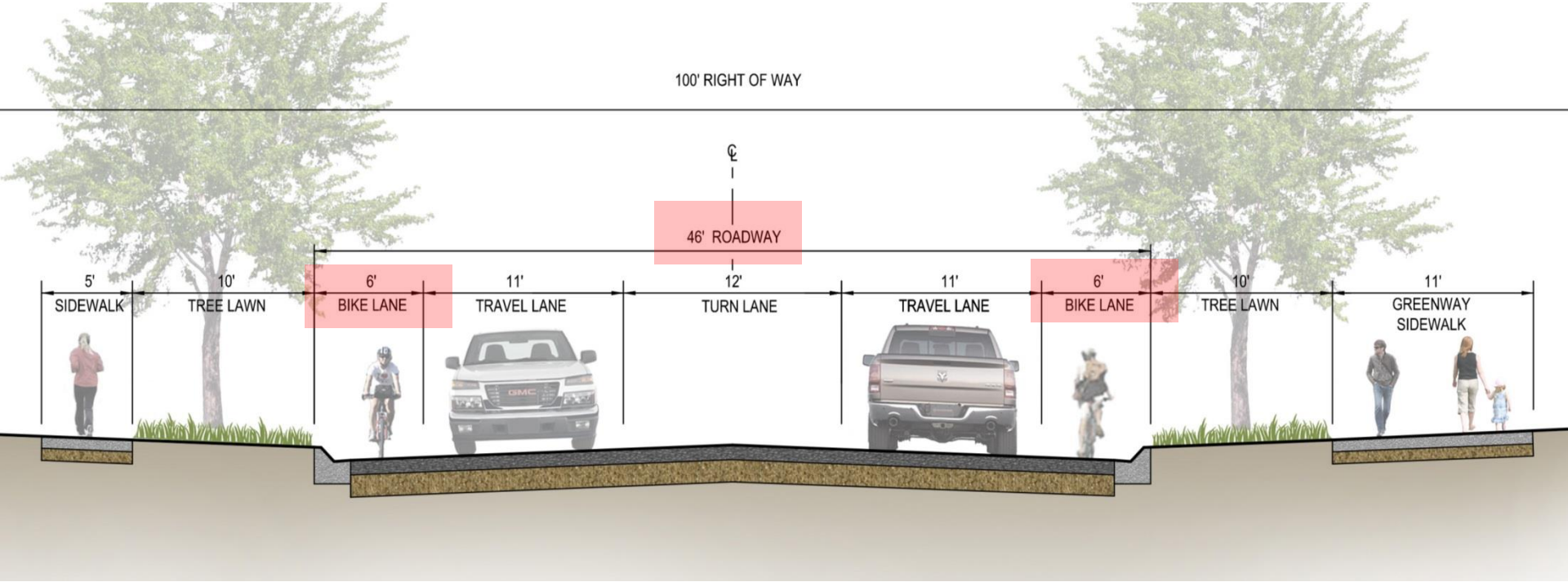
Agenda

- Proposed Roadway Typical Section
- Proposed Conceptual Alternatives
- Briefly Review What we heard?
- Right-of-way Acquisition
- Level of Service Analysis
- Engineer’s Opinion of Costs
- Alternatives Analysis
- Where do we go from here?

Proposed Conceptual Typical Section



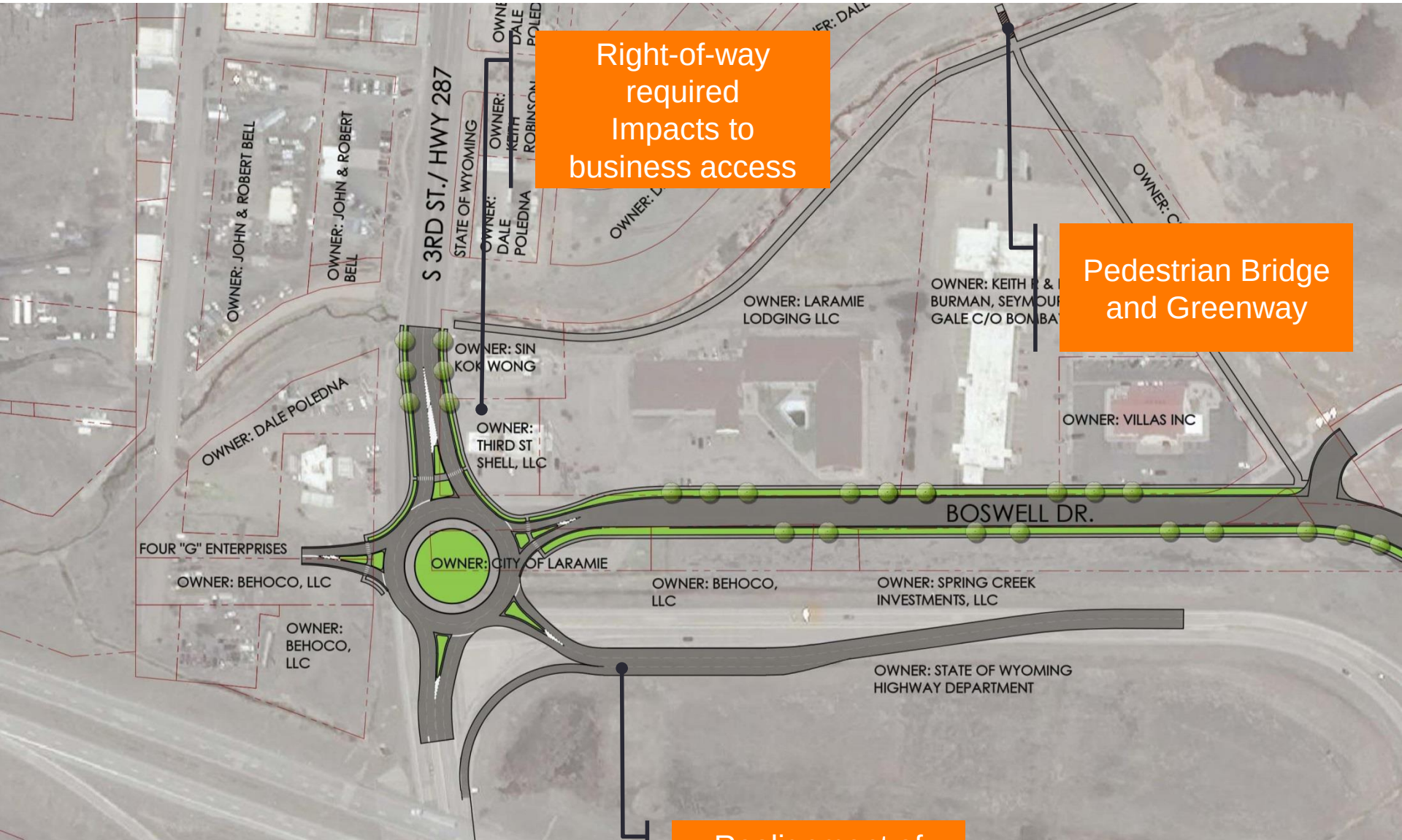
Do Nothing – Utilize 15th Street

Revised Bill Nye Realignment

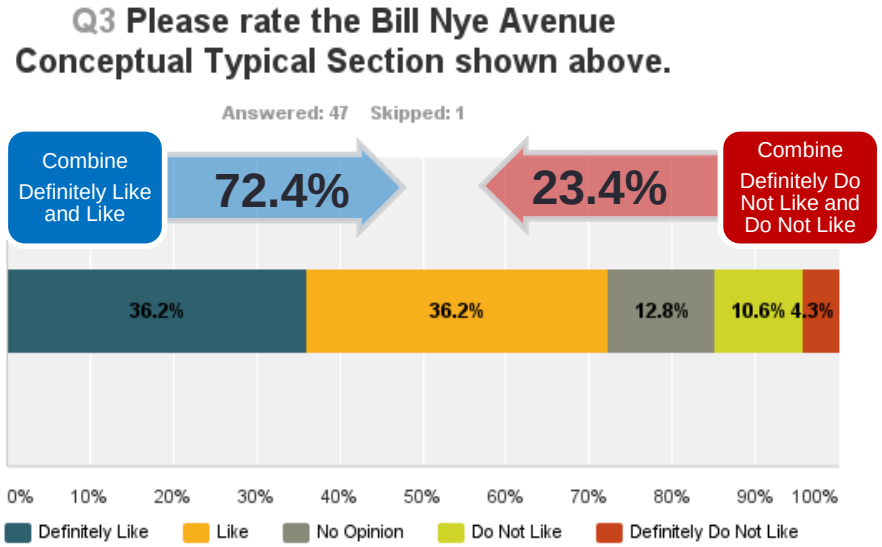
E. Palmer Drive w/ Cul-de-sac Boswell

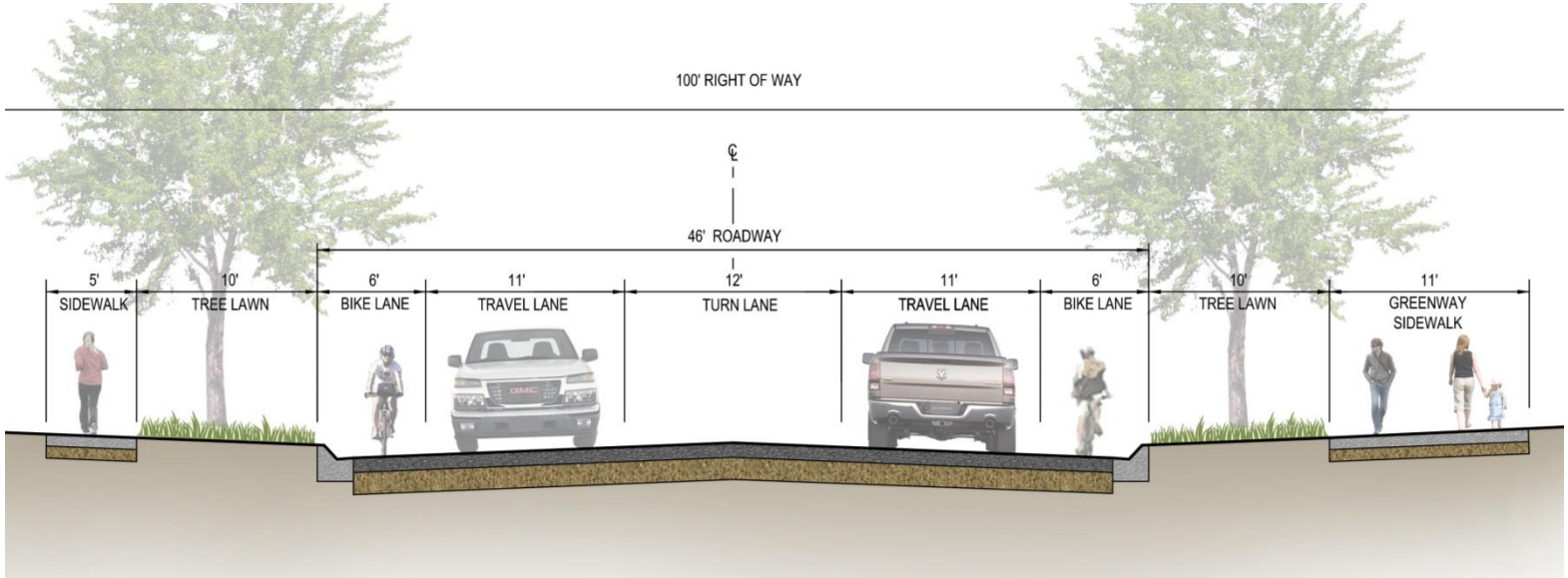
RAB at 3rd/ Boswell/ I-80 WB Ramps

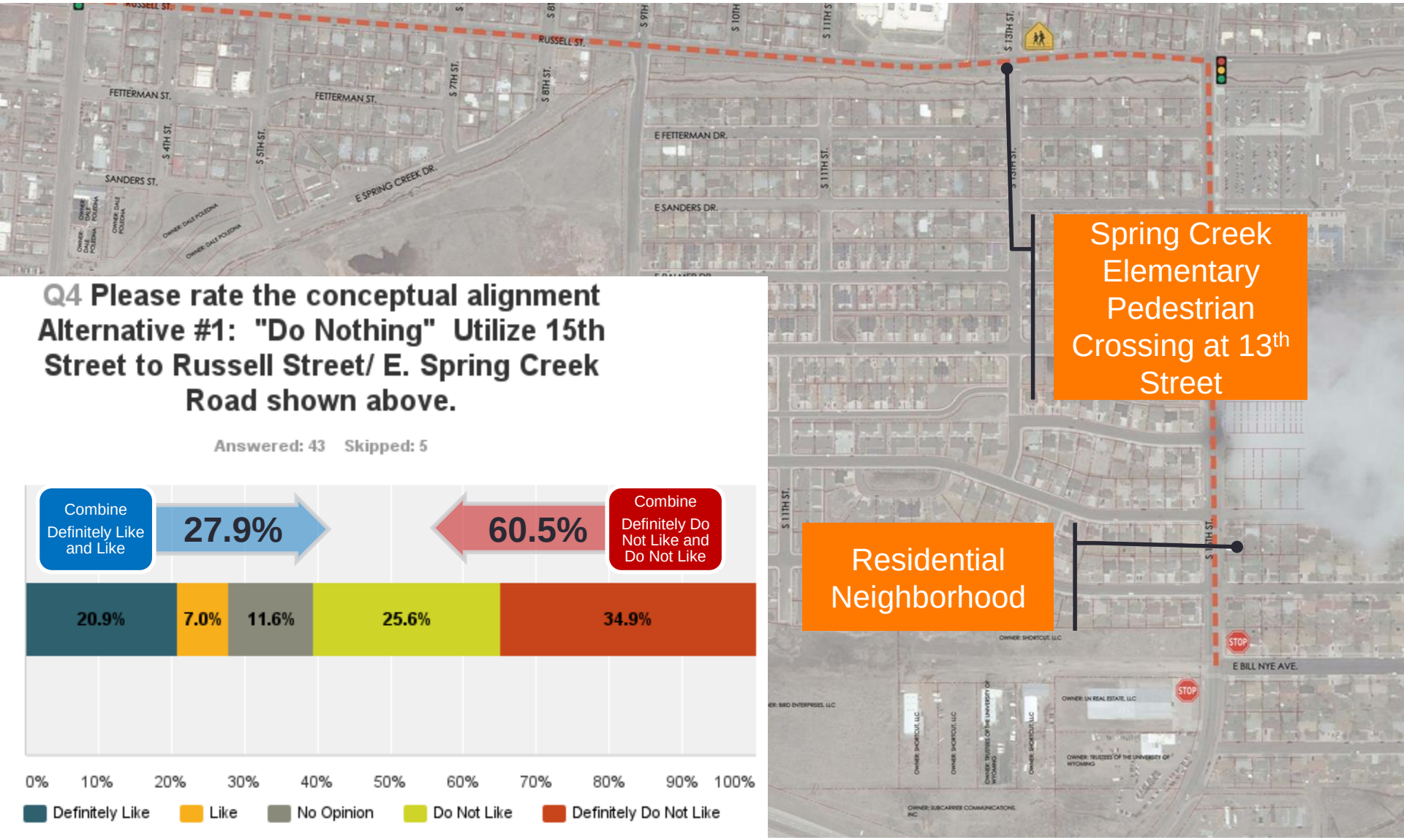
RAB at 3rd/ Boswell/ I-80 WB Ramps



What we heard?





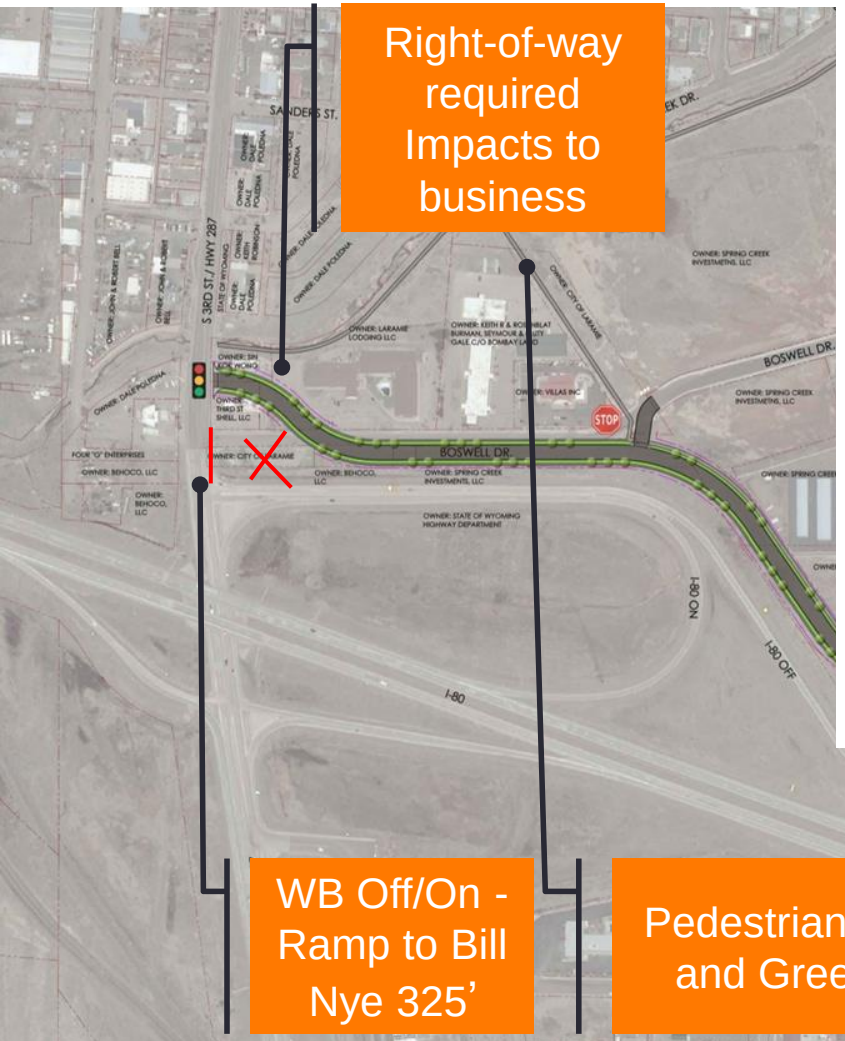


Q4 Please rate the conceptual alignment Alternative #1: "Do Nothing" Utilize 15th Street to Russell Street/ E. Spring Creek Road shown above.

Answered: 43 Skipped: 5

Do Nothing – Utilize 15th Street

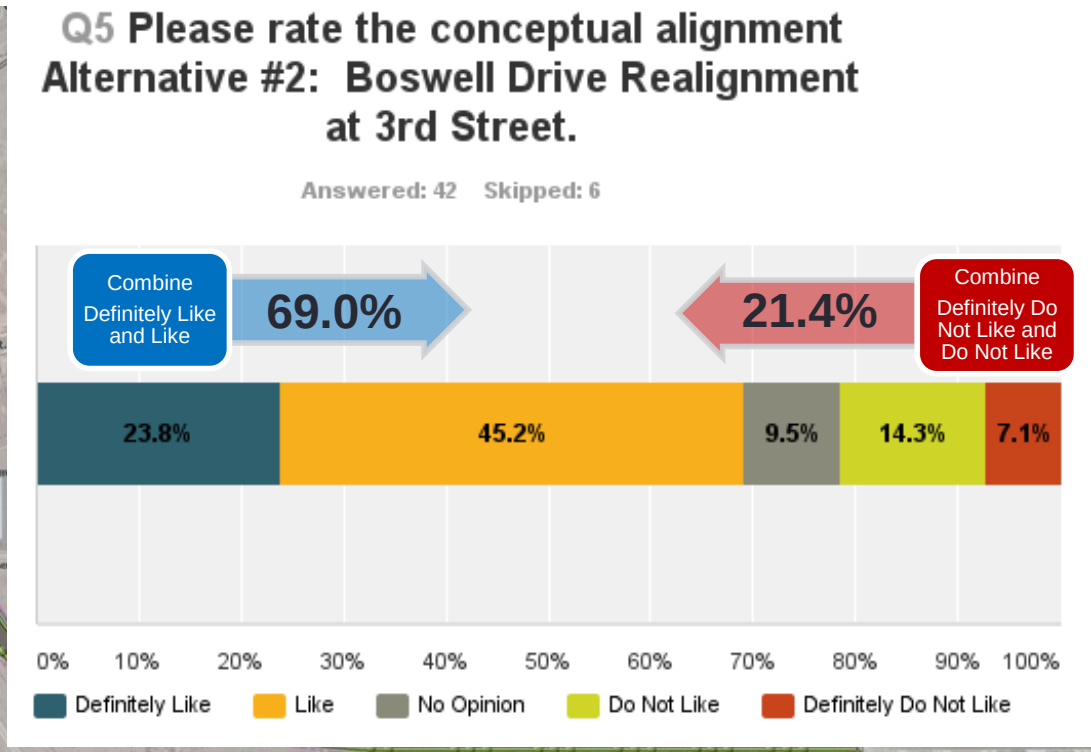
Revised Boswell Realignment

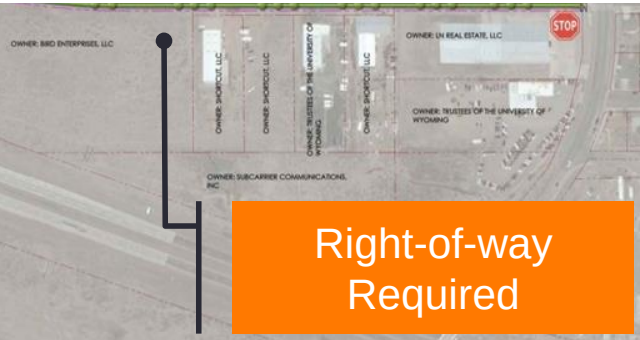


Right-of-way required Impacts to business

WB Off/On - Ramp to Bill Nye 325’

Pedestrian Bridge and Greenway





Right-of-way Required

E. Palmer Drive w/ Cul-de-sac Boswell

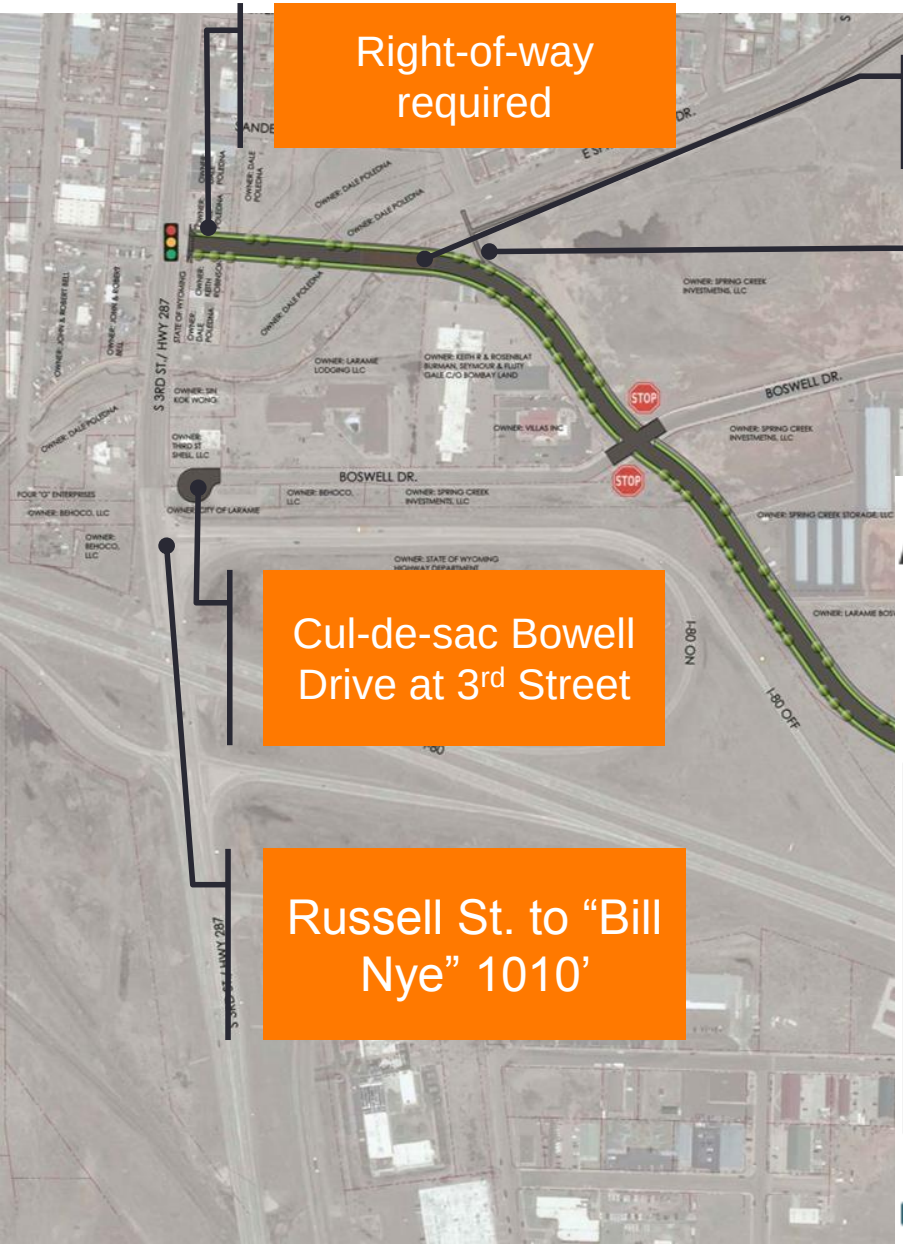
Right-of-way required

Bridge or Box Culvert Crossing at Spring Creek

Pedestrian Bridge and Greenway

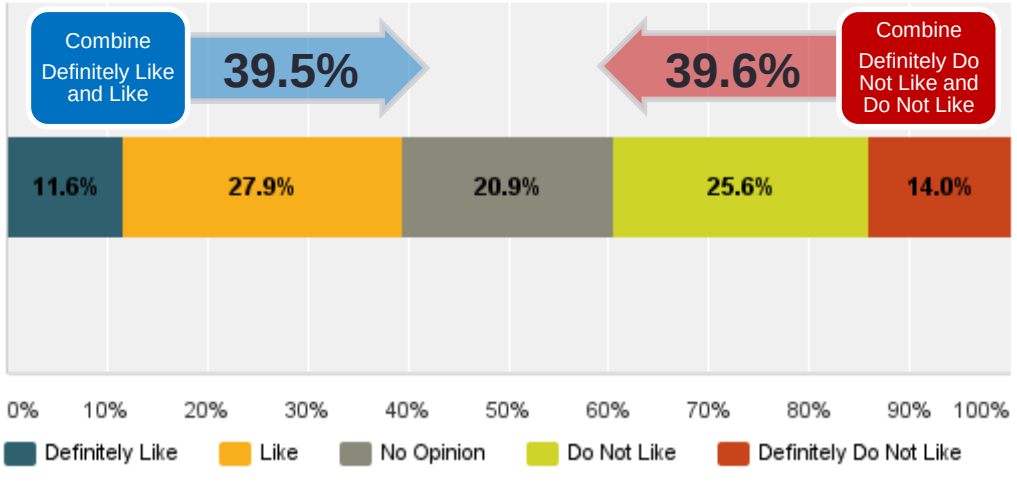
Cul-de-sac Bowell Drive at 3rd Street

Russell St. to “Bill Nye” 1010’

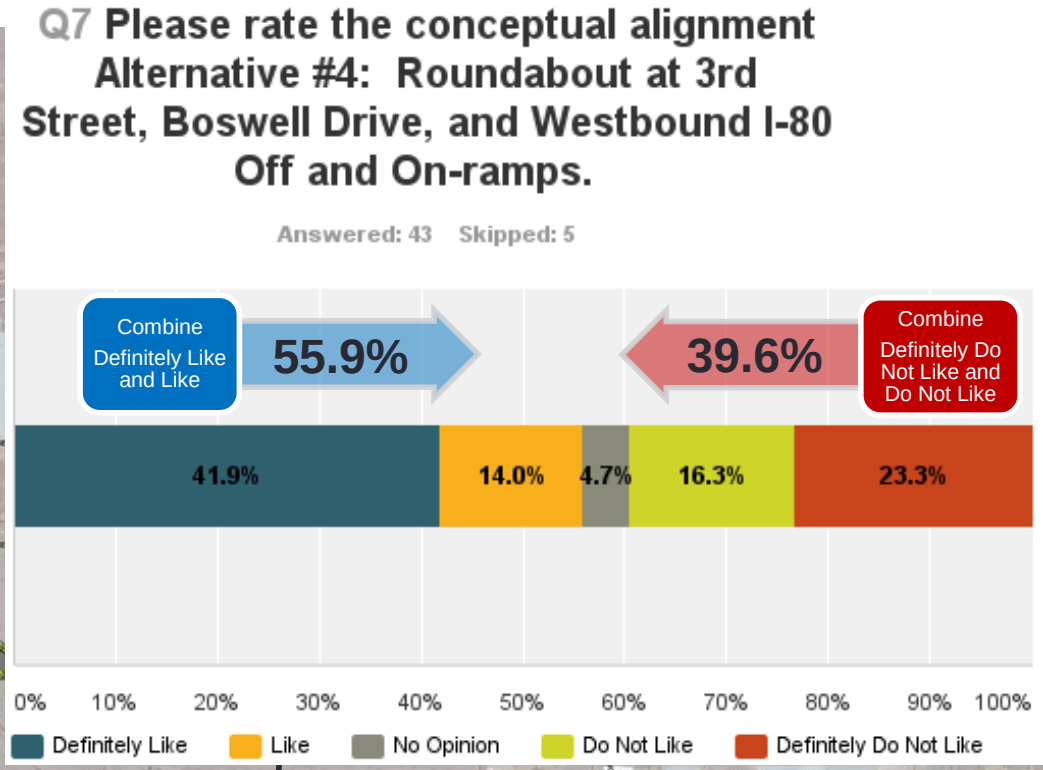


Q6 Please rate the conceptual alignment Alternative #3: Bill Nye Avenue Connection at Palmer Drive/ 3rd Street and Cul-de-sac Boswell Drive at 3rd Street.

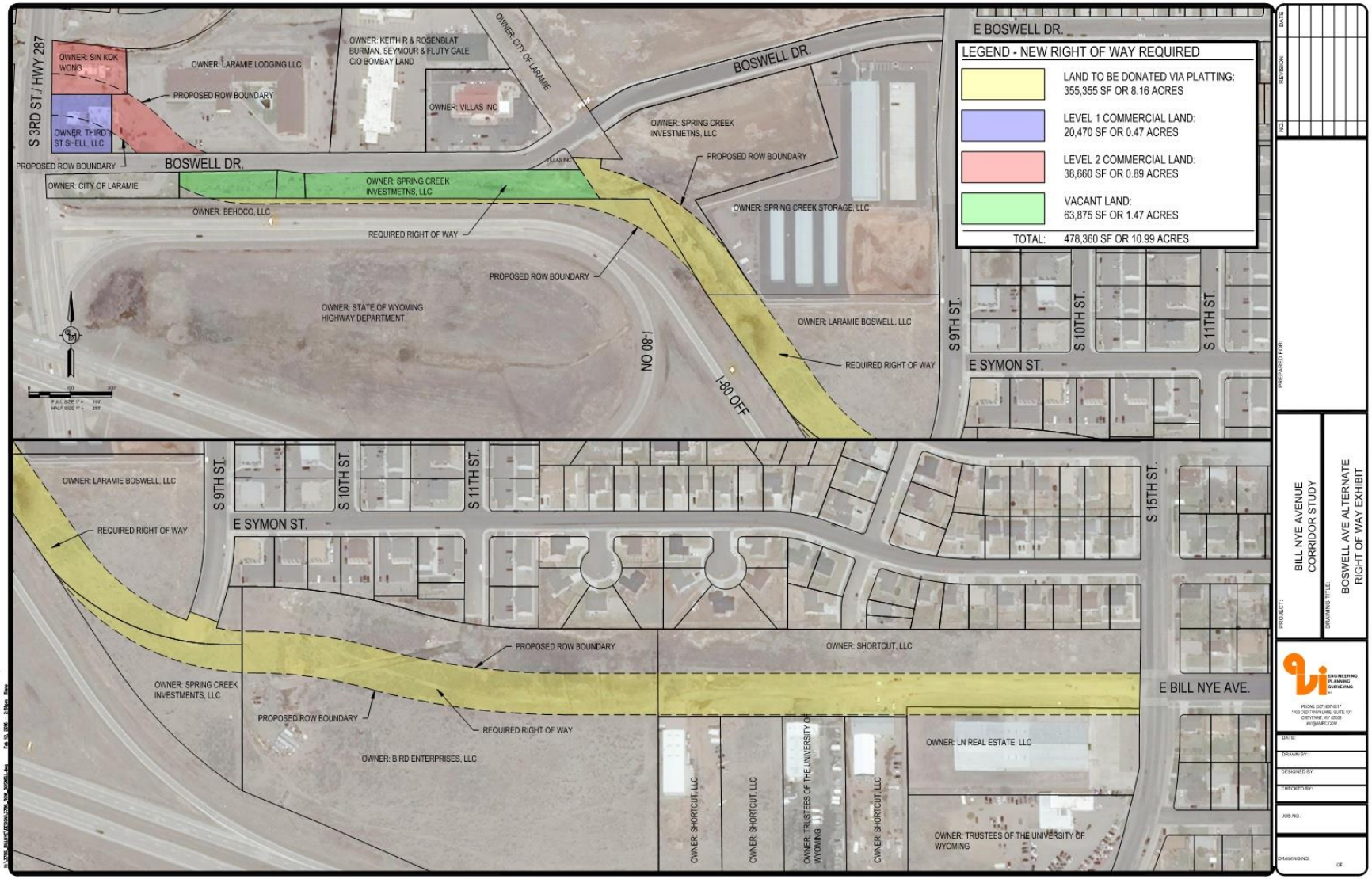
Answered: 43 Skipped: 5



RAB at 3rd/ Boswell/ I-80 WB Ramps

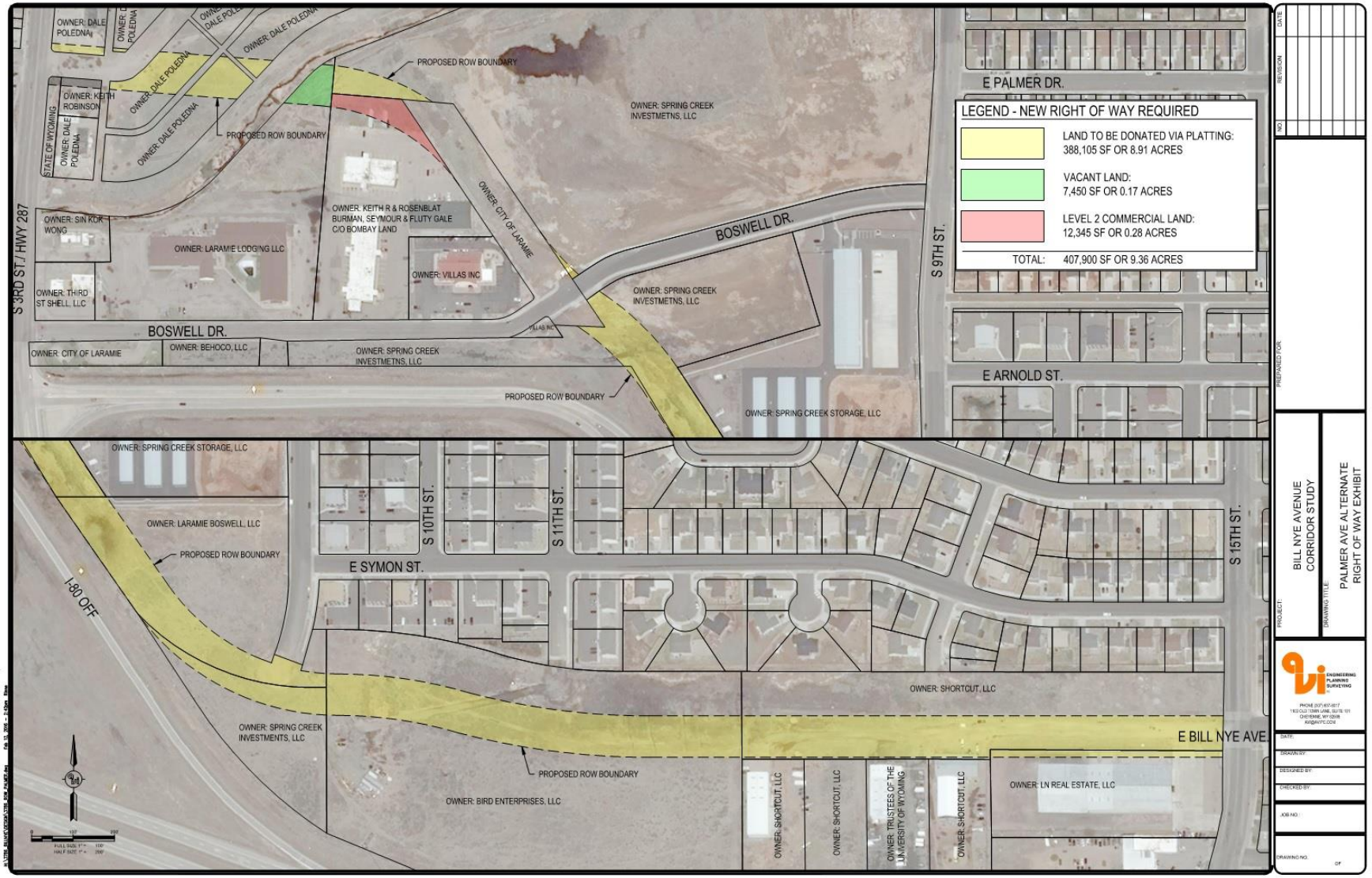


Alternative 2: Right-of-way Acquisition

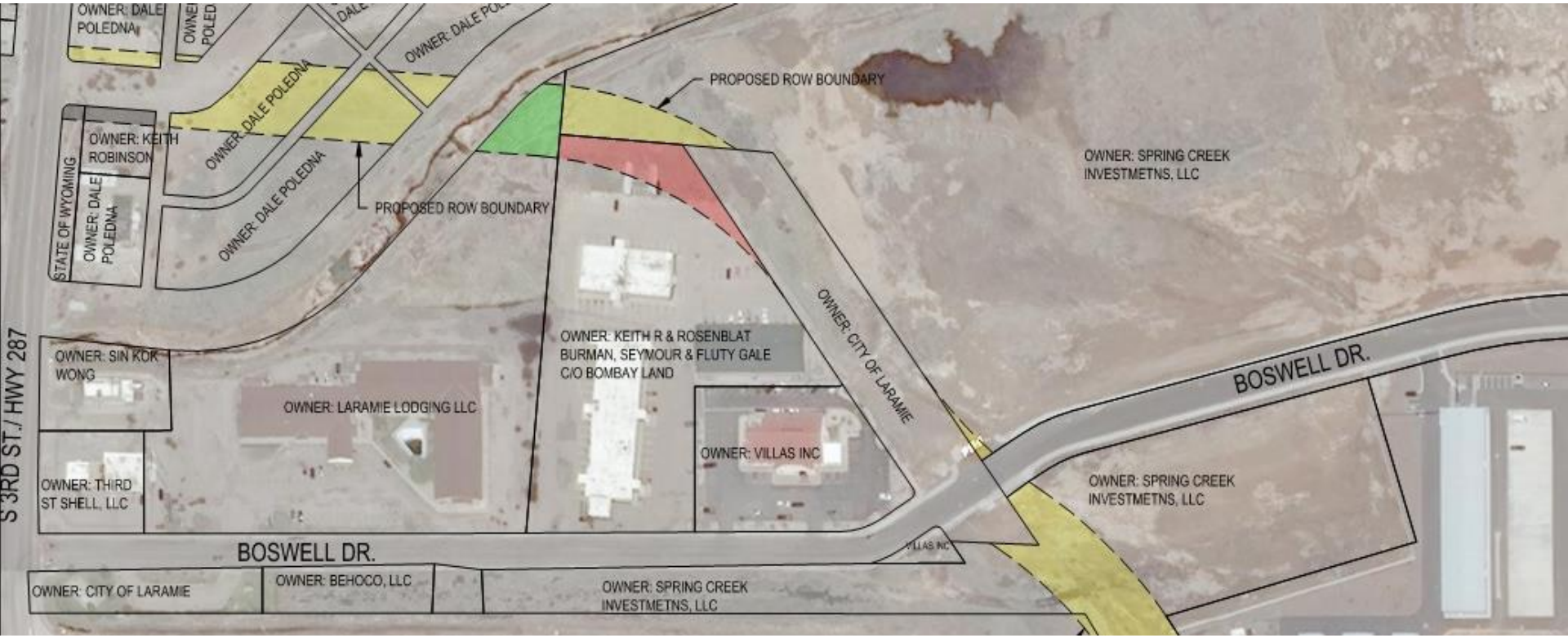


Alternative 2: Right-of-way Detail

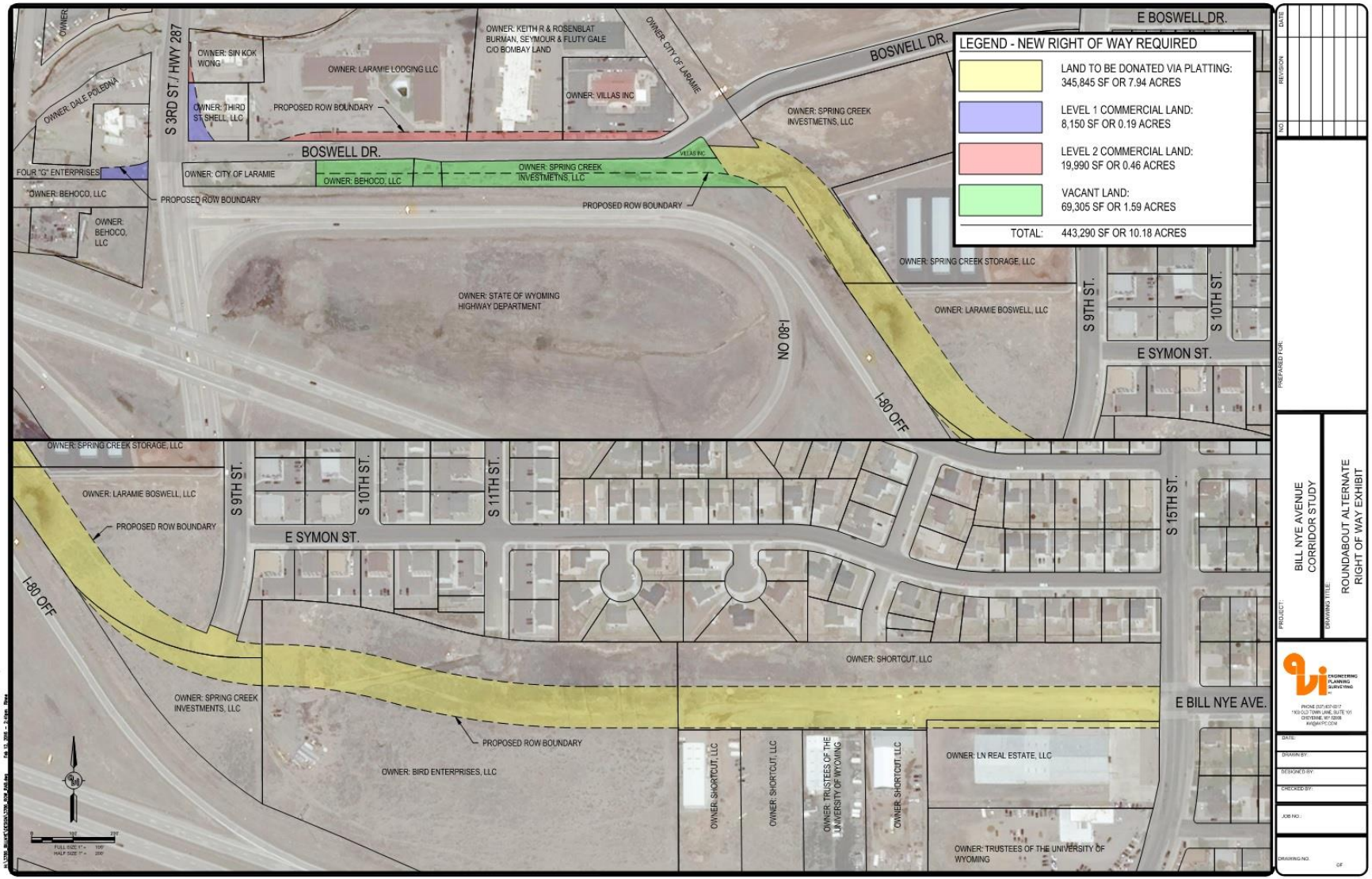
Alternative 3: Right-of-way Acquisition?



Alternative 3: Right-of-way Acquisition?



Alternative 4: Right-of-way Acquisition



Alternative 4: Right-of-way Detail

Level of Service Analysis

Year 2035 Intersection Operational Summary

Option	Intersection LOS											
	3rd / Russell		3rd / Sanders		3rd / Palmer Street		3rd / Boswell		3rd / I-80 Ramps		3rd / I-80 Ramps	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Move 3rd / Boswell North	A	A	C	D	---	---	A	A	D	F	AM	A
	Signalized		Stop Controlled		---		Signalized		Stop Controlled		Signalized	
Bill Nye Intersects 3rd Street at Palmer Street	A	B	C	D	A	A	---	---	D	F	A	A
	Signalized		Stop Controlled		Signalized		---		Stop Controlled		Signalized	
Roundabout at 3rd Street / Boswell Drive / I-80 Ramps	B	B	C	D	---	---	B	C	---	---	---	---
					---		Roundabout		---		---	
No Nothing	B	B	C	D	---	---	B	A	D	F	A	A
	Signalized		Stop Controlled		---		Signalized		Stop Controlled		Signalized	

Engineers Opinion of Cost (Present Worth)

Description of Area	Construction Cost (1)	Right-of-way Cost (2)	Engineering Design (3)	Total	For Estimate
Alternative 1: **Do Nothing**	$ 283,376.10	$ -	$ 24,641.40	$ 308,017.50	**$ 310,000**
Alternative 2: **Revised Bill Nye Avenue**	$ 4,375,468.25	$ 1,589,020.00	$ 190,237.75	$ 6,154,726.00	**$ 6,160,000**
Alternative 3: **East Palmer Drive**	$ 6,059,914.65	$ 148,140.00	$ 263,474.55	$ 6,471,529.20	**$ 6,480,000**
Alternative 4: **RAB 3rd Street**	$ 4,916,573.15	$ 798,820.00	$ 427,528.10	$ 6,142,921.25	**$ 6,150,000**

Footnotes:

(1) The Cost Estimates were developed using data from the Colorado Department of Transportation (CDOT) *2014 & 2015 Cost Data Book* compiled by the Engineering Estimates and Marketing Analysis Unit; *2014 & 2015 Weighted Average Bid Prices*, complied by WYDOT; and Typical Costs from historical AVI project experience database.

(2) Right-of-way costs are based on listed values of adjacent similar property gathered by City of Laramie Planning Division and AVI, pc (i.e. South 3rd Street, Undeveloped, Commercial Level 1 and Level 2)

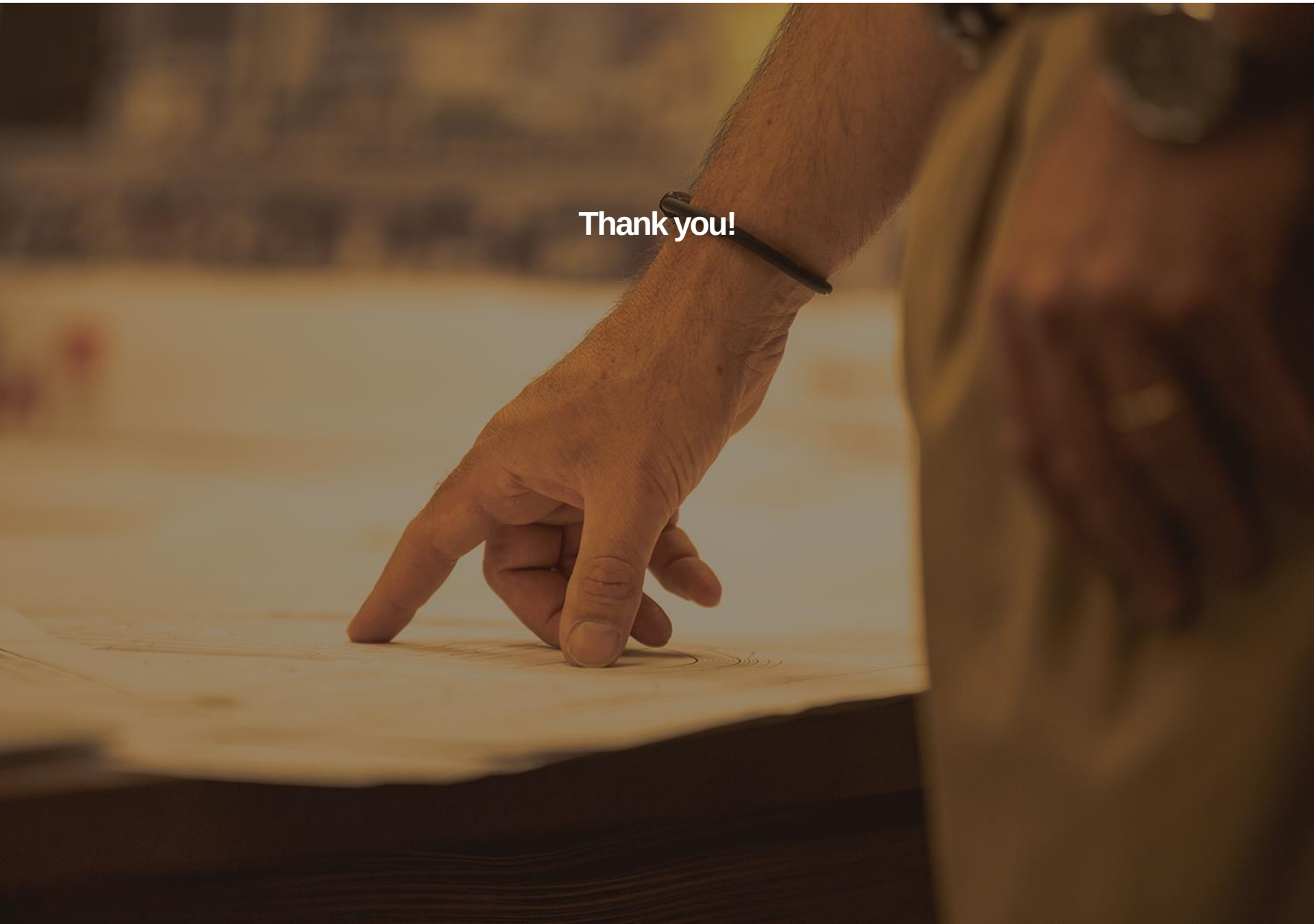
(3) Engineer Design estimated at 5% (2 and 3) and 10% (4) of total construction cost.

Alternatives Analysis

Criteria	Alternative 1 Do Nothing	Alternative 2 Boswell Realignment	Alternative 3 E. Palmer Extension	Alternative 4 RAB at 3rd Street
Construction Cost	1	4	5	4
Constructability	1	5	5	4
Construction Phasablilty	1	4	4	2
Maintenance	1	3	3	4
Public Consensus	5	2	4	3
Business Negative Impact	2	5	1	3
Neighborhood Negative Impacts	5	2	2	1
Level of Service 2035	5*	5*	1	1
Meets Goals and Objectives	5	4	2	1
Average	**3.1**	**3.8**	**3.0**	**2.6**

Where do we go from here?

Activity	Tentative Schedule*
Council Work Session	February 9, 2016
Draft Corridor Plan	February – March, 2016
Steering Committee	February 16, 2016
Submit Draft Plan for Review	March 18, 2016
Final Draft	April 1, 2016
Presentation to Governing Body	April, 2016


Thank you!

APPENDIX D

Cost Estimates

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ENGINEERING
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Project #: **2-3786.15 Project Estimate**
Project Name: **Bill Nye Avenue Corridor Study**
Calculated By: JDW, FTR, TDC
Date: Thursday, February 11, 2016

				ESTIMATED COSTS	
Alternative 1: Do Nothing					
Item No.	**Item**	**Total**	**Unit**	**Unit Price**	**Total**
1020.01	BONDS AND INSURANCE	1	LS	$ 3,100.00	$ 3,100.00
1020.02	CONTRACTOR TESTING	1	LS	$ 10,000.00	$ 10,000.00
1020.03	POTHOLING UTILITIES (NON-DESTRUCTIVE)	1	LS	$ 2,000.00	$ 2,000.00
1030.01	MOBILIZATION	1	LS	$ 51,600.00	$ 51,600.00
1050.01	TRAFFIC CONTROL	1	LS	$ 15,000.00	$ 15,000.00
1563.01	STORMWATER MANAGEMENT & EROSION CONTROL	1	LS	$ 5,000.00	$ 5,000.00
2050.01	REMOVAL OF STRUCTURES AND OBSTRUCTIONS (PAVEMENT, CONCRETE, VEGETATION)	1	LS	$ 10,000.00	$ 10,000.00
2210.01	UNCLASSIFIED EXCAVATION	500	CY	$ 10.00	$ 5,000.00
2231.01	CRUSHED BASE - 6"	400	SY	$ 9.00	$ 3,600.00
2231.02	CRUSHED BASE - 4"	13,856	SY	$ 7.50	$ 103,920.00
2512.01	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'A' - 2"	400	SY	$ 12.00	$ 4,800.00
2512.02	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'D' - 2"	400	SY	$ 13.00	$ 5,200.00
2900.01	LANDSCAPING (RESTORE AND RECLAIM)	0.5	AC	$ 4,000.00	$ 2,000.00
3340.02	CURB AND GUTTER	327	LF	$ 22.00	$ 7,194.00
3340.03	CONCRETE CURB FILLET	2	EA	$ 4,000.00	$ 8,000.00
3340.05	CONCRETE SIDEWALK - 4"	180	SY	$ 50.00	$ 9,000.00
4000.01	PAVEMENT MARKINGS	500	LF	$ 2.00	$ 1,000.00
7000.01	RC BOX CULVERT EXTENSION	811	SF	$ 50.00	$ 40,550.00
7000.02	RC BOX CULVERT HEADWALL	2	EA	$ 5,000.00	$ 10,000.00
7000.03	TRAFFIC SIGNAL SYSTEM (INTERSECTION) COMPLETE IN PLACE	1	EA	$ 273,000.00	$ 273,000.00
7000.04	TRAFFIC SIGNAL SYSTEM (MODIFICATION)	1	EA	$ 50,000.00	$ 50,000.00
				SUB-TOTAL	**$ 246,414.00**
	CONTINGENCY (15%)	1	LS	$ 36,962.10	$ 36,962.10
				SUB-TOTAL CONSTRUCTION	**$ 283,376.10**
	ENGINEERING DESIGN (10%)	1	LS	$ 24,641.40	$ 24,641.40
				SUB-TOTAL ENGINEERING	**$ 24,641.40**
	RIGHT OF WAY ACQUISITION (VACANT)		FT	$ 8.00	$ -
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 1)		FT	$ 30.00	$ -
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 2)		FT	$ 12.00	$ -
				SUB-TOTAL RIGHT-OF-WAY	**$ -**
				TOTAL	**$ 308,017.50**
				FOR ESTIMATE	**$ 310,000**

Footnotes:

(1) The Cost Estimates were developed using data from the Colorado Department of Transportation (CDOT) *2014 & 2015 Cost Data* Book compiled by the Engineering Estimates and Marketing Analysis Unit; 2014 & 2015 Weighted Average Bid Prices, complied by WYDOT; and Typical Costs from historical AVI project experience database.

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(3) Please note totals and unit prices are calcualted based on present worth or present value dollars. Adjustements should be made for years beyond the present year to better estimate required capital dollars for future improvements plan(s).

(4) Curb and gutter quanity includes Curb and Gutter (Special) in the Roundabout Islands median

(5) Landscaping quanitiy includes the area between the curb and gutter and adjacent sidewalk.

(6) Estimated values of Contract Bond and Insurance and Mobilization were estimated at 0.6% and 10% of total construction cost, respectively.

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Project #: **2-3786.15 Project Estimate**
Project Name: **Bill Nye Avenue Corridor Study**
Calculated By: JDW, FTR, TDC
Date: Thursday, February 11, 2016

				ESTIMATED COSTS	
Alternative 2: Bill Nye Realignment					
Item No.	**Item**	**Total**	**Unit**	**Unit Price**	**Total**
1020.01	BONDS AND INSURANCE	1	LS	$ 25,000.00	$ 25,000.00
1020.02	CONTRACTOR TESTING	1	LS	$ 30,000.00	$ 30,000.00
1020.03	POTHOLING UTILITIES (NON-DESTRUCTIVE)	1	LS	$ 5,000.00	$ 5,000.00
1030.01	MOBILIZATION	1	LS	$ 416,200.00	$ 416,200.00
1050.01	TRAFFIC CONTROL	1	LS	$ 10,000.00	$ 10,000.00
1563.01	STORMWATER MANAGEMENT & EROSION CONTROL	1	LS	$ 10,000.00	$ 10,000.00
2050.01	REMOVAL OF STRUCTURES AND OBSTRUCTIONS (PAVEMENT, CONCRETE, VEGETATION)	1	LS	$ 30,000.00	$ 30,000.00
2210.01	UNCLASSIFIED EXCAVATION	20,000	CY	$ 4.00	$ 80,000.00
2231.01	CRUSHED BASE - 6"	24,448	SY	$ 9.00	$ 220,032.00
2231.02	CRUSHED BASE - 4"	13,856	SY	$ 7.50	$ 103,920.00
2231.03	STRUCTURAL STABILZATION GRADING #57 - 12"	24,448	SY	$ 18.00	$ 440,064.00
2512.01	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'A' - 2"	24,448	SY	$ 12.00	$ 293,376.00
2512.02	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'D' - 2"	24,448	SY	$ 13.00	$ 317,824.00
2665.01	WATER MAIN/ EXTENSION/ MODIFICATION	5,000	LF	$ 70.00	$ 350,000.00
2700.01	SANITARY SEWER MODIFICATION AND ADJUSTMENT	3,500	LS	$ 60.00	$ 210,000.00
2725.01	STORM SEWER	3,500	LS	$ 80.00	$ 280,000.00
2895.01	GEOTEXTILE MATERIAL STABLIZATION	24,448	SY	$ 3.50	$ 85,568.00
2900.01	LANDSCAPING (RESTORE AND RECLAIM)	1.9	AC	$ 1,500.00	$ 2,850.00
3340.02	CURB AND GUTTER	9,753	LF	$ 22.00	$ 214,566.00
3340.03	CONCRETE CURB FILLET	8	EA	$ 4,000.00	$ 32,000.00
3340.04	CONCRETE VALLEY PAN - 8"	233	SY	$ 75.00	$ 17,475.00
3340.05	CONCRETE SIDEWALK - 4"	11,689	SY	$ 50.00	$ 584,450.00
3340.06	CONCRETE APPROACH - 8"	1	LS	$ 1,500.00	$ 1,500.00
4000.01	PAVEMENT MARKINGS	9,505	LF	$ 2.00	$ 19,010.00
6000.01	PEDESTRIAN BRIDGE (60 X 12)	720	SF	$ 36.00	$ 25,920.00
7000.01	ROADWAY/ MULTI-USE PATH LIGHTING	1	LS	$ 252,373.40	$ 252,373.00
7000.02	TRAFFIC SIGNAL SYSTEM (INTERSECTION) COMPLETE IN PLACE	2	EA	$ 273,000.00	$ 546,000.00
				SUB-TOTAL	**$ 3,804,755.00**
	CONTINGENCY (15%)	1	LS	$ 570,713.25	$ 570,713.25
				SUB-TOTAL CONSTRUCTION	**$ 4,375,468.25**
	ENGINEERING DESIGN (5%)	1	LS	$ 190,237.75	$ 190,237.75
				SUB-TOTAL ENGINEERING	**$ 190,237.75**
	RIGHT OF WAY ACQUISTION (VACANT)	63,875	FT	$ 8.00	$ 511,000.00
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 1)	20,470	FT	$ 30.00	$ 614,100.00
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 2)	38,660	FT	$ 12.00	$ 463,920.00
				SUB-TOTAL RIGHT-OF-WAY	**$ 1,589,020.00**
				TOTAL	**$ 6,154,726.00**
				FOR ESTIMATE	**$ 6,160,000**

Footnotes:

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Project #: **2-3786.15** **Project Estimate**
Project Name: **Bill Nye Avenue Corridor Study**
Calculated By: JDW, FTR, TDC
Date: Thursday, February 11, 2016

				Engineers Estimate	
Alternative 3: E. Palmer Drive					
Item No.	**Item**	**Total**	**Unit**	**Unit Price**	**Total**
1020.01	BONDS AND INSURANCE	1	LS	$ 28,600.00	$ 28,600.00
1020.02	CONTRACTOR TESTING	1	LS	$ 30,000.00	$ 30,000.00
1020.03	POTHOLING UTILITIES (NON-DESTRUCTIVE)	1	LS	$ 5,000.00	$ 5,000.00
1030.01	MOBILIZATION	1	LS	$ 476,500.00	$ 476,500.00
1050.01	TRAFFIC CONTROL	1	LS	$ 10,000.00	$ 10,000.00
1563.01	STORMWATER MANAGEMENT & EROSION CONTROL	1	LS	$ 10,000.00	$ 10,000.00
2050.01	REMOVAL OF STRUCTURES AND OBSTRUCTIONS (PAVEMENT, CONCRETE, VEGETATION)	1	LS	$ 20,000.00	$ 20,000.00
2210.01	UNCLASSIFIED EXCAVATION	20,000	CY	$ 4.00	$ 80,000.00
2231.01	CRUSHED BASE - 6"	26,159	SY	$ 9.00	$ 235,427.00
2231.02	CRUSHED BASE - 4"	12,598	SY	$ 7.50	$ 94,488.00
2231.03	STRUCTURAL STABILZATION GRADING #57 - 12"	26,159	SY	$ 18.00	$ 470,862.00
2512.01	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'A' - 2"	26,159	SY	$ 12.00	$ 313,903.00
2512.02	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'D' - 2"	26,159	SY	$ 13.00	$ 340,061.00
2665.01	WATER MAIN/ EXTENSION/ MODIFICATION	5,000	LF	$ 70.00	$ 350,000.00
2700.01	SANITARY SEWER MODIFICATION AND ADJUSTMENT	3,500	LF	$ 60.00	$ 210,000.00
2725.01	STORM SEWER	3,500	LF	$ 80.00	$ 280,000.00
2895.01	GEOTEXTILE MATERIAL STABLIZATION	26,159	SY	$ 3.50	$ 91,557.00
2900.01	LANDSCAPING (RESTORE AND RECLAIM)	2.2	AC	$ 1,500.00	$ 3,300.00
3340.02	CURB AND GUTTER	10,291	LF	$ 22.00	$ 226,393.00
3340.03	CONCRETE CURB FILLET	10	EA	$ 4,000.00	$ 40,000.00
3340.04	CONCRETE VALLEY PAN - 8"	285	SY	$ 75.00	$ 21,348.00
3340.05	CONCRETE SIDEWALK - 4"	10,312	SY	$ 50.00	$ 515,579.00
3340.06	CONCRETE APPROACH - 8"	1	LS	$ 1,500.00	$ 1,500.00
4000.01	PAVEMENT MARKINGS	9,907	LF	$ 2.00	$ 19,813.00
4005.01	DRY UTILITY RELOCATION	1	LS	$ -	$ -
6000.01	SPRING CREEK BRIDGE CROSSING (180 X 66)	11,880	SF	$ 48.00	$ 570,240.00
6000.02	PEDESTRIAN BRIDGE (60 X 12)	720	SF	$ 36.00	$ 25,920.00
7000.01	ROADWAY/ MULTI-USE PATH LIGHTING	1	LS	$ 253,000.00	$ 253,000.00
7000.02	TRAFFIC SIGNAL SYSTEM (INTERSECTION) COMPLETE IN PLACE	2	EA	$ 273,000.00	$ 546,000.00
				SUB-TOTAL	**$ 5,269,491.00**
	CONTINGENCY (15%)	1	LS	$ 790,423.65	$ 790,423.65
				SUB-TOTAL CONSTRUCTION	**$ 6,059,914.65**
	ENGINEERING DESIGN (5%)	1	LS	$ 263,474.55	$ 263,474.55
				SUB-TOTAL ENGINEERING	**$ 263,474.55**
	RIGHT OF WAY ACQUISTION (VACANT)		FT	$ 8.00	$ -
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 1)		FT	$ 30.00	$ -
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 2)	12,345	FT	$ 12.00	$ 148,140.00
				SUB-TOTAL RIGHT-OF-WAY	**$ 148,140.00**
				TOTAL	**$ 6,471,529.20**
				FOR ESTIMATE	**$ 6,480,000**

Footnotes:

(1) The Cost Estimates were developed using data from the Colorado Department of Transportation (CDOT) *2014 & 2015 Cost Data* Book compiled by the Engineering Estimates and Marketing Analysis Unit; 2014 & 2015 Weighted Average Bid Prices, complied by WYDOT; and Typical Costs from historical AVI project experience database.

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Project #: **2-3786.15 Project Estimate**
Project Name: **Bill Nye Avenue Corridor Study**
Calculated By: JDW, FTR, TDC
Date: Wednesday, February 10, 2016

				Engineers Estimate	
Alternative 4: Roundabout at 3rd Street/ Boswell/ I-80 Westbound Ramps					
Item No.	**Item**	**Total**	**Unit**	**Unit Price**	**Total**
1020.01	BONDS AND INSURANCE	1	LS	$ 21,900.00	$ 21,900.00
1020.02	CONTRACTOR TESTING	1	LS	$ 30,000.00	$ 30,000.00
1020.03	POTHOLING UTILITIES (NON-DESTRUCTIVE)	1	LS	$ 5,000.00	$ 5,000.00
1030.01	MOBILIZATION	1	LS	$ 363,800.00	$ 363,800.00
1050.01	TRAFFIC CONTROL	1	LS	$ 10,000.00	$ 10,000.00
1563.01	STORMWATER MANAGEMENT & EROSION CONTROL	1	LS	$ 10,000.00	$ 10,000.00
2050.01	REMOVAL OF STRUCTURES AND OBSTRUCTIONS (PAVEMENT, CONCRETE, VEGETATION)	1	LS	$ 20,000.00	$ 20,000.00
2210.01	UNCLASSIFIED EXCAVATION	20,000	CY	$ 4.00	$ 80,000.00
2231.01	CRUSHED BASE - 6"	23,130	SY	$ 9.00	$ 208,170.00
2231.02	CRUSHED BASE - 4"	24,093	SY	$ 7.50	$ 180,698.00
2231.03	STRUCTURAL STABILZATION GRADING #57 - 12"	23,130	SY	$ 18.00	$ 416,340.00
2512.01	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'A' - 2"	23,130	SY	$ 12.00	$ 277,560.00
2512.02	PLANT MIX BITUMINOUS PAVEMENT (TYPE II) GRADING 'D' - 2"	23,130	SY	$ 13.00	$ 300,690.00
2665.01	WATER MAIN/ EXTENSION/ MODIFICATION	5,000	LF	$ 70.00	$ 350,000.00
2700.01	SANITARY SEWER MODIFICATION AND ADJUSTMENT	3,500	LS	$ 60.00	$ 210,000.00
2725.01	STORM SEWER	3,500	LS	$ 80.00	$ 280,000.00
2895.01	GEOTEXTILE MATERIAL STABLIZATION	24,448	SY	$ 3.50	$ 85,568.00
2900.01	LANDSCAPING (RESTORE AND RECLAIM)	2.4	AC	$ 1,500.00	$ 3,600.00
2900.02	LANDSCAPE AND STREETSCAPE ENHANCMENTS	1.0	LS	$ 100,000.00	$ 100,000.00
3340.02	CURB AND GUTTER	11,926	LF	$ 22.00	$ 262,372.00
3340.03	CONCRETE CURB FILLET	6	EA	$ 4,000.00	$ 24,000.00
3340.04	CONCRETE VALLEY PAN - 8"	180	SY	$ 75.00	$ 13,500.00
3340.05	CONCRETE SIDEWALK - 4"	12,514	SY	$ 50.00	$ 625,700.00
3340.06	CONCRETE APPROACH - 8"	1	LS	$ 1,500.00	$ 1,500.00
4000.01	PAVEMENT MARKINGS	11,430	LF	$ 2.00	$ 22,860.00
5000.01	MEDIAN BARRIER 42 IN	910	LF	$ 103.00	$ 93,730.00
6000.01	PEDESTRIAN BRIDGE (60 X 12)	720	SF	$ 36.00	$ 25,920.00
7000.01	ROADWAY/ MULTI-USE PATH LIGHTING	1	LS	$ 252,373.40	$ 252,373.00
					$ 4,275,281.00
	CONTINGENCY (15%)	1	LS	$ 641,292.15	$ 641,292.15
				SUB-TOTAL CONSTRUCTION	$ 4,916,573.15
	ENGINEERING DESIGN (10%)	1	LS	$ 427,528.10	$ 427,528.10
				SUB-TOTAL ENGINEERING	$ 427,528.10
	RIGHT OF WAY ACQUISTION (VACANT)	39,305	FT	$ 8.00	$ 314,440.00
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 1)	8,150	FT	$ 30.00	$ 244,500.00
	RIGHT OF WAY ACQUISITION (COMMERCIAL LEVEL 2)	19,990	FT	$ 12.00	$ 239,880.00
				SUB-TOTAL RIGHT-OF-WAY	$ 798,820.00
				TOTAL	$ 6,142,921.25
				FOR ESTIMATE	$ 6,150,000

Footnotes:

(1) The Cost Estimates were developed using data from the Colorado Department of Transportation (CDOT) *2014 & 2015 Cost Data* Book compiled by the Engineering Estimates and Marketing Analysis Unit; 2014 & 2015 Weighted Average Bid Prices, complied by WYDOT; and Typical Costs from historical AVI project experience database.

(2) Right-of-way costs are based on listed values of adjacent similar property gathered by City of Laramie Planning Division and AVI, pc (i.e. South 3rd Street, Undeveloped, Commercial Level 1 and Level 2)

(3) Please note totals and unit prices are calcualted based on present worth or present value dollars. Adjustements should be made for years beyond the present year to better estimate required capital dollars for future improvements plan(s).

(4) Curb and gutter quanity includes Curb and Gutter (Special) in the Roundabout Islands median

(5) Landscaping quanitiy includes the area between the curb and gutter and adjacent sidewalk.

(6) Estimated values of Contract Bond and Insurance and Mobilization were estimated at 0.6% and 10% of total construction cost, respectively.

APPENDIX E

Traffic Analysis

ENGINEERING
PLANNING
SURVEYING
PC

1.0 Traffic Volume Scenarios

Traffic volume scenarios were developed for each of the alternatives, based on existing traffic counts at key intersections on the 3rd Street corridor and projected volumes for the undeveloped areas on the Bill Nye Avenue corridor.

Peak hour turning movement count data were collected on Tuesday May 12, 2015 at Sanders Street, Boswell Drive, and the I-80 Ramps. WYDOT provided peak hour count data for Russel Street that were collected on Thursday September 27, 2012. The existing volumes are summarized in Figure 1 and the counts are contained in Appendix A.

The projected traffic volumes for the analysis were developed through a three step process. First, the existing traffic volumes along the 3rd Street corridor were inflated by 1% annually to Year 2035 levels. These volumes are referred to as the background traffic volumes. Second, projected volumes for undeveloped areas along the corridor and areas that are expected to redevelop were estimated using trip generation rates from Trip Generation, 9th Edition[1]. The projected volumes and assumptions used to develop the volumes are contained in Table 1. The planning areas referenced in Table 1 were defined based on the City's Future Land Use Map (see Figure 2). Third, the projected volumes were distributed based on future traffic patterns. Finally, the background traffic volumes and the projected traffic volumes were combined to create the total traffic volumes. The volume scenarios for the four alternatives are contained in Figures 3 through 6.

The differences between the volume scenarios is based on the access to 3rd Street from the planning areas shown in Figure 2. The Do Nothing alternative assumes that Bill Nye Avenue is not constructed and the existing streets including Sanders Street and Boswell Drive will provide access to the planning areas east of 3rd Street. As a result, most of the traffic from the planning areas will utilize the existing streets in the Do Nothing alternative. The impact to the existing streets can be seen if the Do Nothing alternative volumes at Russell Street are compared with the volumes for the other alternatives. Volumes on Russell Street and the turning movements from 3rd Street onto Russell Street are expected to be higher in the Do Nothing Alternative. In addition, volumes in the Do Nothing Alternative will be higher on 9th Street, 15th Street, Spring Creek Drive, Corthell Road, and Grand Avenue.

2.0 Traffic Signal Warrant Studies

STS evaluated the peak hour warrant for all four traffic volume scenarios. The following warrants were evaluated based on criteria

[1] Trip Generation, 9th Edition: An ITE Informational Report. Institute of Transportation Engineers. 2012.

contained in the Manual on Uniform Traffic Control Devices (MUTCD)[2]:

- Boswell Drive in the Do Nothing Alternative;
- Bill Nye Avenue in Alternatives 1 and 2; and
- I-80 Ramps in all of the alternatives.

The signal warrant studies are contained in Appendix B.

Results of the signal warrant analysis include:

- **Boswell Drive in the Do Nothing Alternative.** A traffic signal is not expected to be warranted at 3rd Street / Boswell Drive in the Do Nothing Alternative.
- **Bill Nye Avenue in Alternatives 1 and 2.** A traffic signal is expected to be warranted at this intersection by the Year 2030 assuming a straight line increase in traffic volumes.
- **I-80 Ramps.** A traffic signal is expected to be warranted at this intersection by the Year 2035 assuming a straight line increase in traffic volumes.

3.0 Review of Crash Data

Crash data were provided by WYDOT for each of the key intersections along the corridor for the time period beginning on January 1, 2010 and ending on August 31, 2015. The number of crashes ranged from a total of seven at Russell Street to two at Sanders Street (see Table 2). Crash rates range from 0.10 crashes per million entering vehicles at the Sanders Street intersection to 0.28 at the Russell Street intersection. Given the low number of crashes and crash rates, STS concludes that there are no crash problems on the corridor. The crash data are contained in Appendix C.

4.0 Intersection Analysis

To evaluate the performance of the intersections on the corridor, the Level of Service (LOS) was calculated using Synchro software. This software package utilizes criteria described in the Highway Capacity Manual[3]. LOS is a measure used to describe operational conditions at an intersection. LOS categories ranging from A to F are assigned based on the predicted delay in seconds per vehicle for the intersection as a whole, as well as for individual turning movements. LOS A indicates very good operations, and LOS F indicates poor, congested operations. Acceptable intersection operation in urban areas is typically considered LOS D or better.

Assumptions used in the analysis include:

- **Saturation Flow Rate.** The saturation flow rate was assumed to be 1,600 passenger cars / hour / lane. This rate has been verified by STS and WYDOT in both Casper and Cheyenne. It reflects the driving habits of motorists in those two

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2 Manual on Uniform Traffic Control Devices. Federal Highway Administration. 2009.

3 Highway Capacity Manual. Transportation Research Board. National Research Council. 2010.

communities and is likely reflective of the driving habits of Laramie residents.

- **Peak Hour Factor.** The peak hour factor for the analysis was assumed to be 0.85 for the existing traffic volumes and 0.92 for the future traffic volume scenarios.
- **Truck Percentage.** The percentage of trucks was assumed to be 2%.
- **Signal Timing.** The signal timing for Russell Street was obtained from WYDOT.

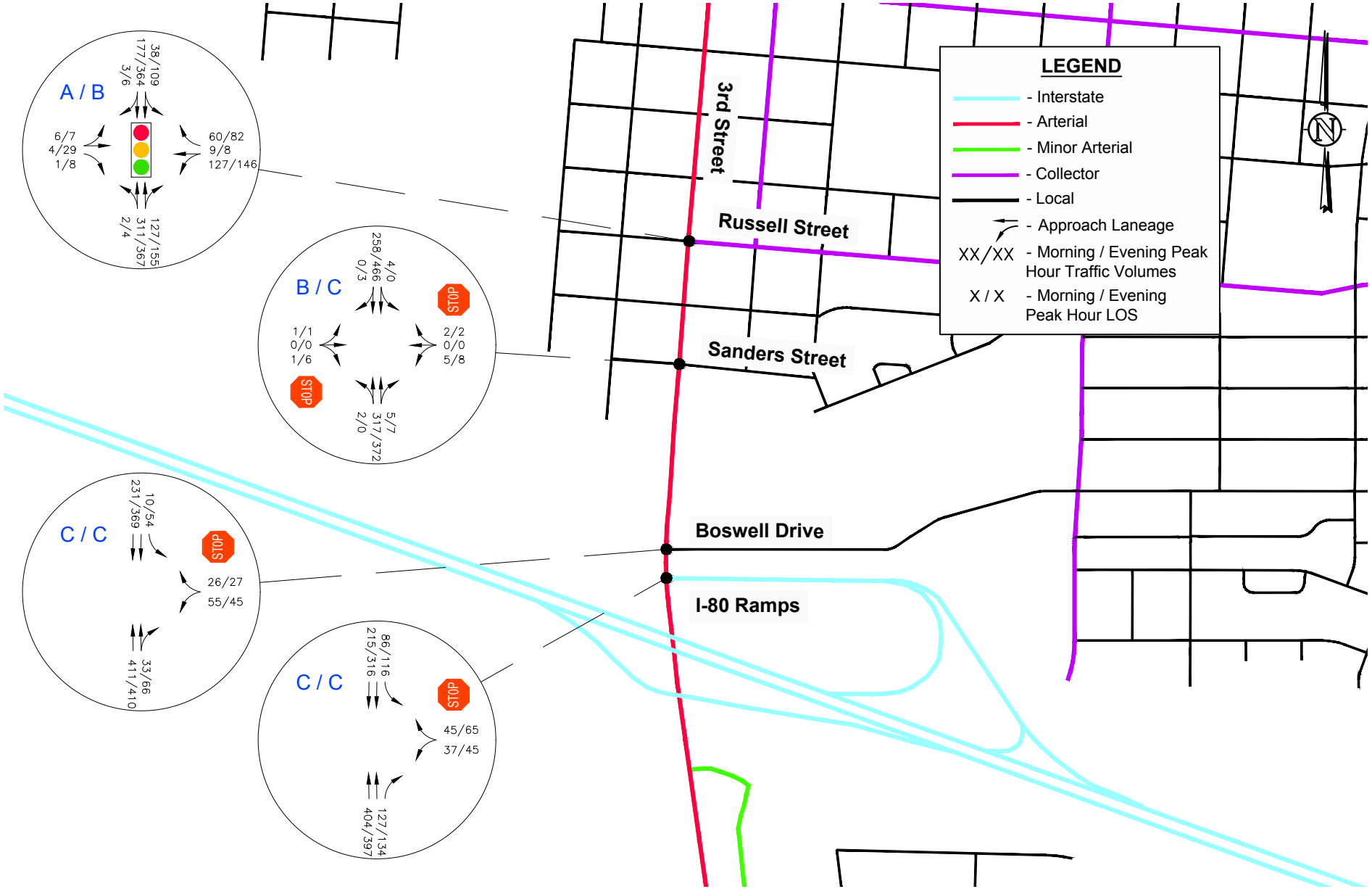
The level of service analysis results are summarized in Table 3, contained in Appendix D, and are described below.

- **Existing Traffic Volumes.** All four of the intersections are operating at acceptable levels of service during both peak hours.
- **Year 2035 Do Nothing Alternative.** The signalized intersections at Russell Street and the I-80 Ramps are expected to operate at LOS A and LOS B. However, the stop controlled intersections at Sanders Street and Boswell Drive are expected to operate at LOS D during the morning peak hour and LOS F during the evening peak hour. The level of service for stop controlled intersections is based on the lowest letter grade for a side street movement. On an arterial street, it isn't unusual for the side street approaches at a stop controlled intersection to perform poorly.
- **Year 2035 Alternatives 1, and 2.** The signalized intersections at Russell Street, Bill Nye Avenue, and the I-80 Ramps are expected to operate at LOS A and LOS B. The stop controlled intersection at Sanders Street is expected to operate at LOS C during the morning peak hour and LOS E during the evening peak hour. The difference in the operation at Sanders Street as compared to the Do Nothing Alternative is the presence of the signal at Bill Nye Avenue in Alternatives 1 and 2. This signal combined with the signal at Russell Street will create gaps in 3rd Street traffic that the side street traffic at Sanders Street can turn into.
- **Year 2035 Alternative 3.** Like Alternatives 1 and 2, Russell Street is expected to operate at LOS A and LOS B, and Sanders Street is expected to operate at LOS C and E. The roundabout at Bill Nye Avenue and the I-80 Ramps is expected to operate at LOS B and C.

5.0 Recommendations

The following long term recommendations are made based on the analysis performed for this project.

- **Left Turn Lane on 3rd Street.** The City and WYDOT should create a left turn lane on 3rd Street at Russell Street and Sanders Street.
- **Sanders Street and Palmer Street.** The City should improve the approaches to 3rd Street at Sanders Street and Palmer Street to allow for two lanes on each approach.



Bill Nye Avenue Corridor Study
EXISTING TRAFFIC VOLUMES

Scale	1" = 750'	Date	March 8, 2016	Drawn by	JBH	Job #	AVI, p.c.	Figure	1

Grand Avenue

3rd Street

9th Street

15th Street

Russell Street

Spring Creek Drive

Corthell Road

Boulder Drive

Bill Nye Avenue

Bill Nye Avenue

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

LEGEND

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Planning Area
- H - Planning Area Designation

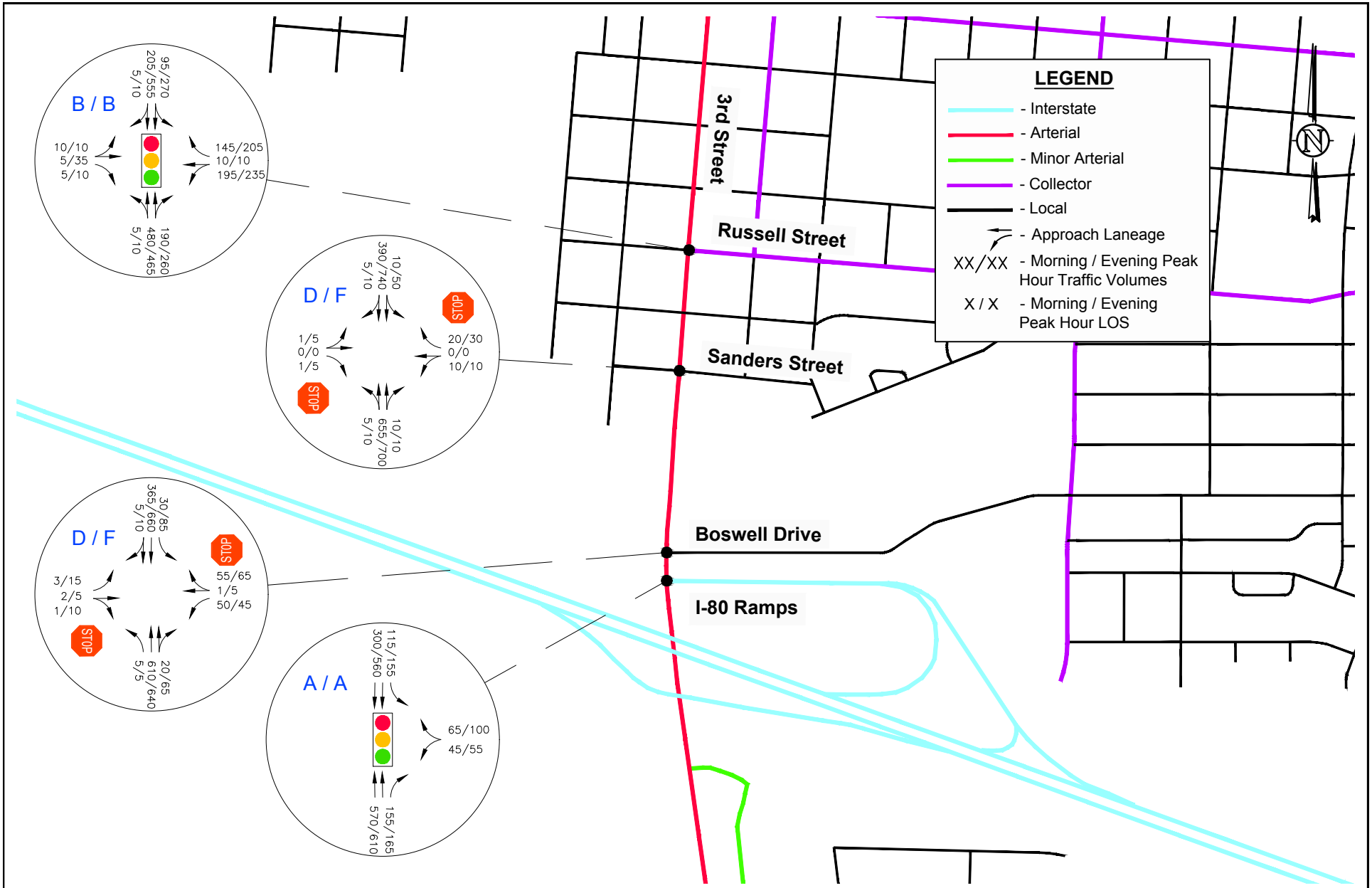
Bill Nye Corridor Study

DEVELOPMENT AREAS ALONG THE BILL NYE CORRIDOR

Scale	Date	Job #	Figure
1" = 1,250'	March 8, 2016	AVI, p.c.	2

Drawn by: JBH

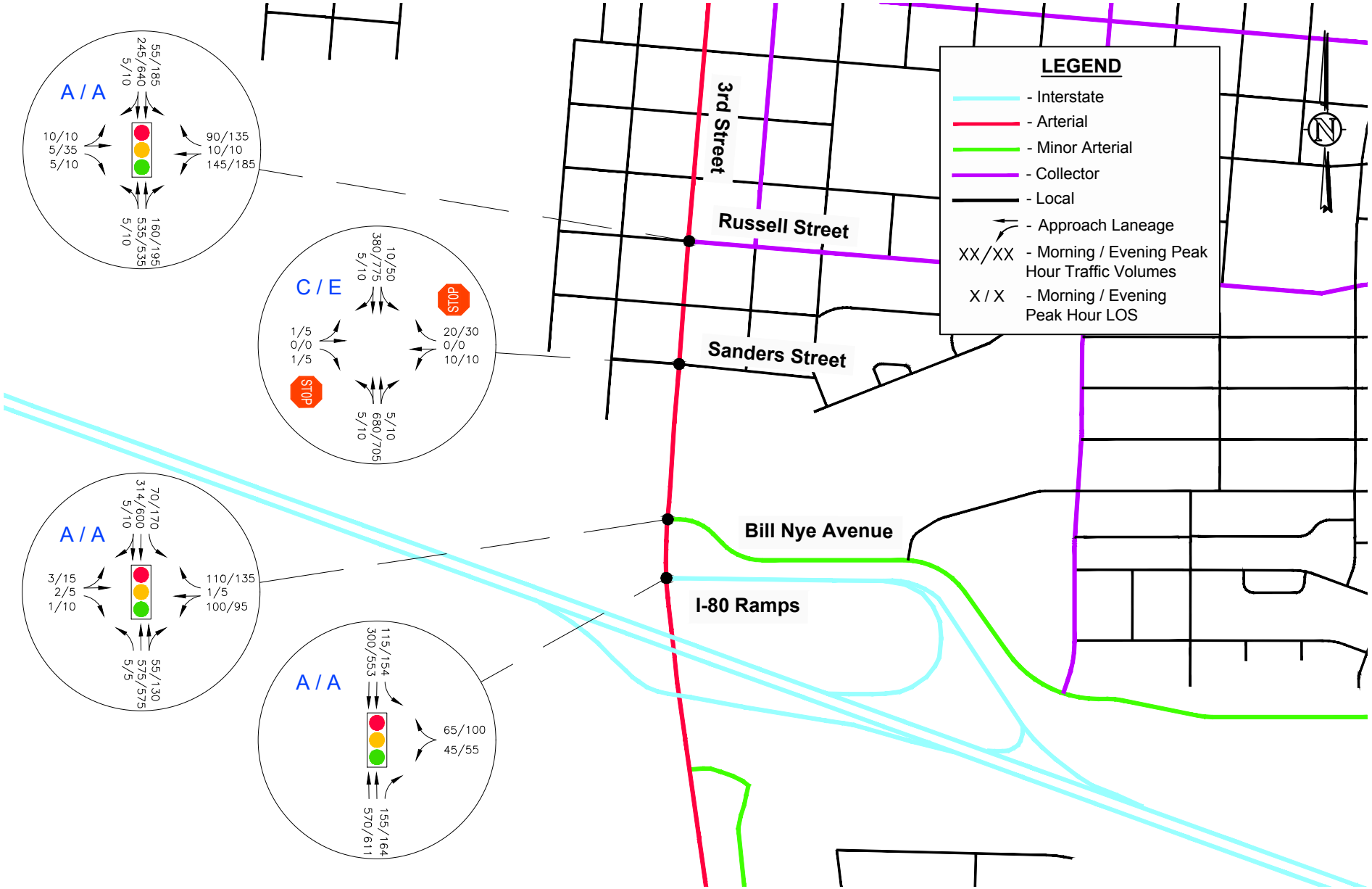
STS



STS

Bill Nye Avenue Corridor Study
YEAR 2035 DO NOTHING ALTERNATIVE

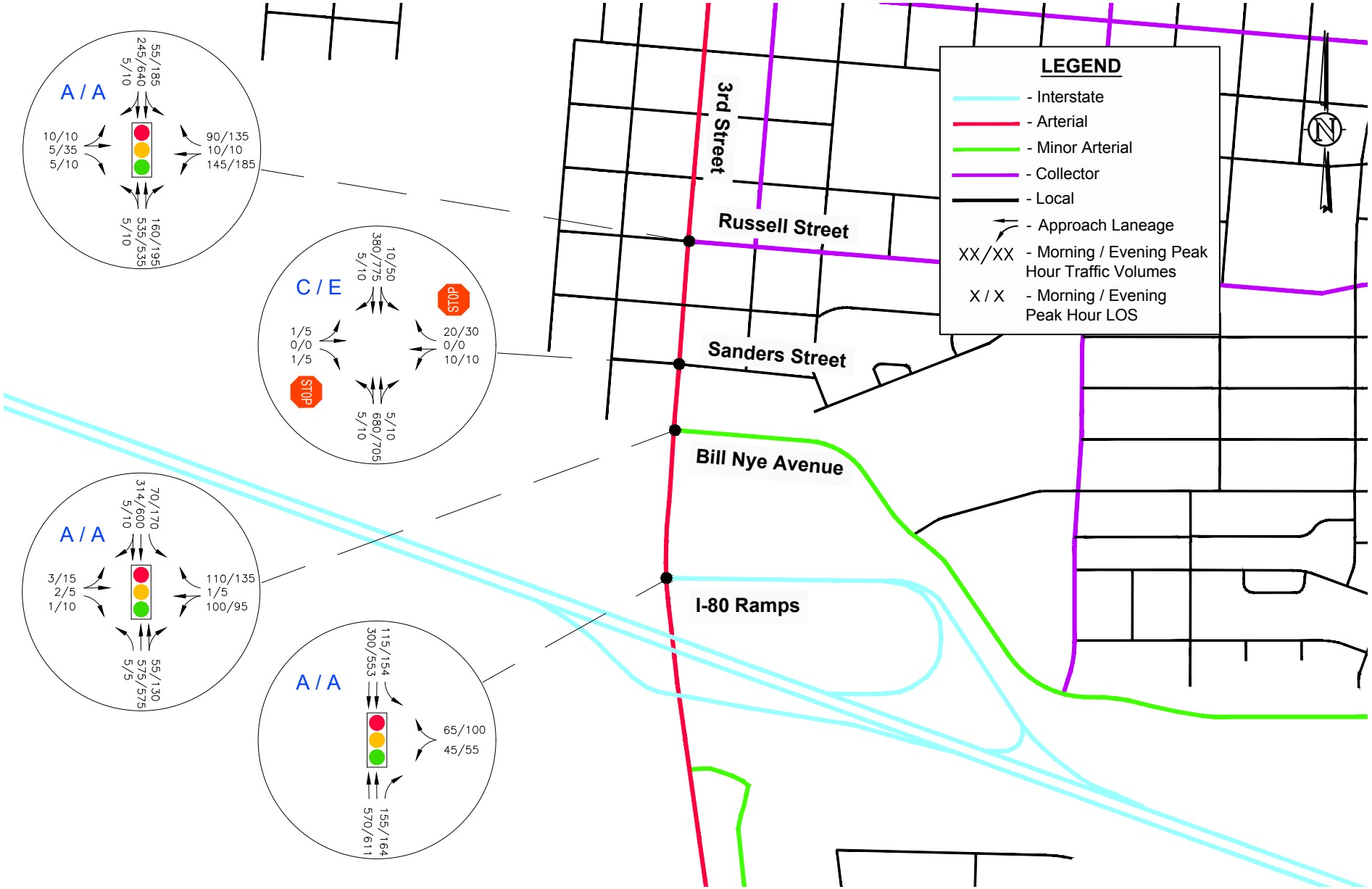
Scale	1" = 750'	Date	March 8, 2016	Drawn by	JBH	Job #	AVI, p.c.	Figure	3



STS

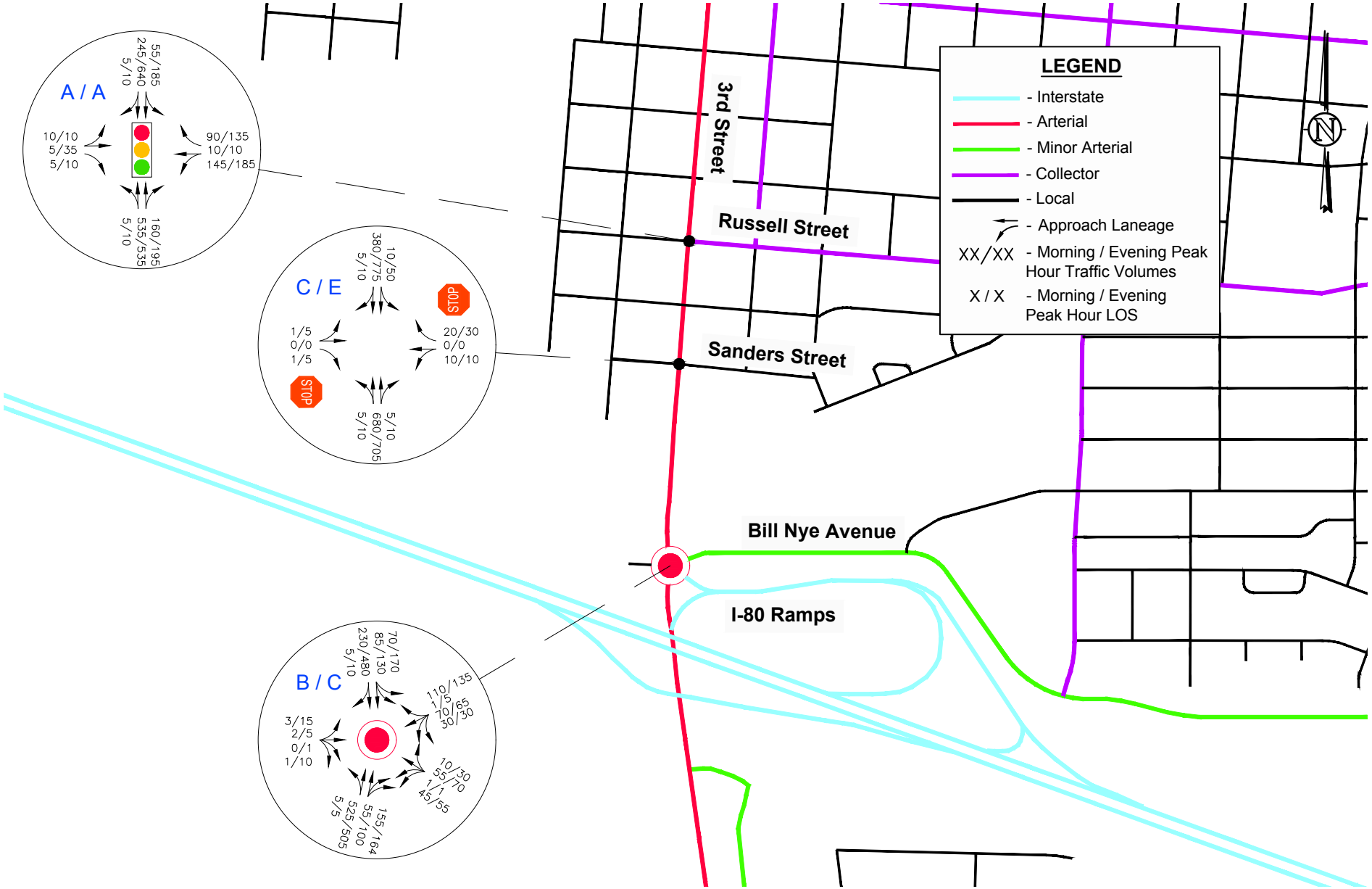
Bill Nye Avenue Corridor Study
YEAR 2035 ALTERNATIVE 1

Scale	1" = 750'	Date	March 8, 2016	Drawn by	JBH	Job #	AVI, p.c.	Figure	4



Bill Nye Avenue Corridor Study
YEAR 2035 ALTERNATIVE 2

Scale	1" = 750'	Date	March 8, 2016	Drawn by	JBH	Job #	AVI, p.c.	Figure	5



STS

Bill Nye Avenue Corridor Study
YEAR 2035 ALTERNATIVE 3

Scale	1" = 750'	Date	March 8, 2016	Drawn by	JBH	Job #	AVI, p.c.	Figure	6

Table 1. Planning Area Development Assumptions

Planning Area	City Land Use	Size (Acres)	Redevelopment Factor	20 Year Development Level [1]	ITE Land Use					Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
					Description	ITE Code	Unit	% of Total	Size	Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
A	AUC Redevelopment	2.8	0.50	90%	Specialty Retail Center	826	1,000 ft^2	100%	11	44.32	483	242	242	0.45	5	2	3	1.49	16	7	9
B	AUC Redevelopment	29.5	0.90	30%	Specialty Retail Center	826	1,000 ft^2	100%	69	44.32	3,079	1,539	1,539	0.45	31	15	16	1.49	104	46	58
C	AUC	5.9	1.00	90%	Specialty Retail Center	826	1,000 ft^2	100%	47	44.32	2,065	1,032	1,032	0.45	21	10	11	1.49	69	31	39
D	AUR	11.5	1.00	80%	Apartment	220	DU	100%	83	6.65	554	277	277	0.51	42	8	34	1.49	124	81	43
E	AUR	8.4	1.00	80%	Apartment	220	DU	100%	61	6.65	404	202	202	0.51	31	6	25	1.49	90	59	32
F	AUC	7.4	1.00	100%	Specialty Retail Center	826	1,000 ft^2	100%	64	44.32	2,841	1,421	1,421	0.45	29	14	15	1.49	96	42	53
G	AUC	25.2	1.00	30%	Specialty Retail Center	826	1,000 ft^2	100%	66	44.32	2,924	1,462	1,462	0.45	29	14	15	1.49	98	43	55
H	SC	23.9	1.00	20%	Specialty Retail Center	826	1,000 ft^2	50%	21	44.32	922	461	461	0.45	9	4	5	1.49	31	14	17
					Office	710	1,000 ft^2	50%	21	11.03	229	115	115	1.56	32	29	4	1.49	31	5	26
I	SR	196.8	1.00	40%	Single Family Detached Housing	210	DU	100%	490	9.52	4,664	2,332	2,332	0.75	367	92	276	1	490	309	181
J	SR	208.9	1.00	50%	Single Family Detached Housing	210	DU	100%	650	9.52	6,188	3,094	3,094	0.75	488	122	366	1	650	410	241
K	Laramie High School	36.5	1.00	100%	High School	530	Students	100%	1,200	1.71	2,052	1,026	1,026	0.43	516	351	165	0.13	156	73	83
L	Elementary School	20.0	1.00	100%	Elementary School	520	Students	100%	500	1.29	645	323	323	0.45	225	124	101	0.15	75	37	38
M	SR	110.4	1.00	100%	Single Family Detached Housing	210	DU	100%	687	9.52	6,540	3,270	3,270	0.75	515	129	386	1	687	433	254
N	AUC	86.0	1.00	50%	Specialty Retail Center	826	1,000 ft^2	100%	375	44.32	16,610	8,305	8,305	0.45	168	80	87	1.49	558	246	313
O	SR	99.3	1.00	30%	Single Family Detached Housing	210	DU	100%	185	9.52	1,765	883	883	0.75	139	35	104	1	185	117	69

Note

1. Assumptions for the amount of development that is expected to occur in each planning area was provided by City staff.

Assumptions

Residential

Apartment - 1 Unit / 4,800 ft^2

Single Family Detached Housing - 1 Unit / 7,000 ft^2

Business

Specialty Retail Center and Office - 20% FAR

Specialty Retail Center - Morning peak hour rate is 30% of evening peak hour rate

Table 2. Crash Summary for Key Intersections

3rd Street / Russell Street	
Type	Number
Rear End	5
Approach Turn	1
Vehicle vs. Bicycle	1
Total	7
Rate	0.28
PDO	6
Injury	1

3rd Street / Sanders Street	
Type	Number
Sideswipe	2
Total	2
Rate	0.10
PDO	1
Injury	1

3rd Street / Boswell Drive	
Type	Number
Rear End	1
Sideswipe	1
Angle	1
Total	3
Rate	0.14
PDO	2
Injury	1

3rd Street / I-80 Ramps	
Type	Number
Rear End	3
Sideswipe	1
Angle	2
Total	6
Rate	0.23
PDO	6
Injury	0

Table 3. Intersection Operational Summary

Signalized Intersection	Existing				Do Nothing Alternative				Alternative 1				Alternative 2				Alternative 3			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3rd Street / Russell Street	**9.6**	**A**	**10.1**	**B**	**18.0**	**B**	**14.0**	**B**	**7.7**	**A**	**9.5**	**A**	**7.5**	**A**	**9.5**	**A**	**9.5**	**A**	**12.4**	**B**
Eastbound Left Turn	29.4	C	27.6	C	30.1	C	30.0	C	29.8	C	28.5	C	29.8	C	28.5	C	29.8	C	28.5	C
Eastbound Thru plus Right Turn	26	C	24.3	C	22.4	C	20.3	C	25.2	C	22.9	C	25.2	C	22.9	C	25.2	C	22.9	C
Westbound Left Turn	30.4	C	29.7	C	28.6	C	30.7	C	29.7	C	29.0	C	29.7	C	29.0	C	29.7	C	29.0	C
Westbound Thru plus Right Turn	29	C	26.4	C	29.1	C	32.3	C	29.0	C	26.6	C	29	C	26.6	C	29.0	C	26.6	C
Northbound Left Turn plus Thru plus Right Turn	3.4	A	5.1	A	16.8	B	2.2	A	1.5	A	1.5	A	1.1	A	1.5	A	4.7	A	6.8	A
Southbound Left Turn plus Thru plus Right Turn	2.9	A	6.1	A	13.3	B	17.2	B	3.4	A	8.6	A	3.4	A	8.6	A	3.6	A	13.9	B
3rd Street / Bill Nye Avenue	The intersection does not exist.				The intersection will not exist in this scenario.				**8.8**	**A**	**5.5**	**A**	**6.1**	**A**	**10.8**	**B**	This intersection is included in the roundabout.			
Eastbound Left Turn									32.2	C	32.1	C	32.2	C	32.1	C				
Eastbound Thru plus Right Turn									26.7	C	25.2	C	26.7	C	25.2	C				
Westbound Left Turn									29.8	C	28.0	C	29.8	C	28.0	C				
Westbound Thru plus Right Turn									34.4	C	32.3	C	34.4	C	32.3	C				
Northbound Left Turn									0.4	A	0.0	A	0.0	A	1.6	A				
Northbound Thru plus Right Turn									0.7	A	0.9	A	0.7	A	0.9	A				
Southbound Left Turn									9.0	A	1.7	A	0.3	A	14.6	B				
Southbound Thru plus Right Turn									9.2	A	1.1	A	3.0	A	12.9	B				
3rd Street / I-80 Ramps	The intersection is stop controlled.				**4.9**	**A**	**5.2**	**A**	**4.9**	**A**	**5.1**	**A**	**4.9**	**A**	**5.1**	**A**	This intersection is included in the roundabout.			
Westbound Left Turn					33.2	C	30.0	C	33.5	C	30.4	C	33.5	C	30.4	C				
Westbound Right Turn					39.7	D	37.7	D	40.1	D	38.1	D	40.1	D	38.2	D				
Northbound Thru					2.1	A	2.9	A	2.0	A	2.7	A	2.0	A	2.7	A				
Southbound Left Turn					0.9	A	1.6	A	0.7	A	1.2	A	0.7	A	1.2	A				
Southbound Thru					0.1	A	0.3	A	0.1	A	0.3	A	0.1	A	0.3	A				

Stop Controlled Intersections	Existing				Do Nothing Alternative				Alternative 1				Alternative 2				Alternative 3			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3rd Street / Sanders Street																				
Northbound Left Turn	7.9	A	0	A	8.3	A	9.8	A	8.2	A	9.7	A	8.2	A	9.7	A	8.2	A	9.7	A
Northbound Thru	---	---	---	---	0.0	A	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A
Eastbound Left Turn plus Thru plus Right Turn	11.1	B	11.1	B	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Eastbound Left Turn	---	---	---	---	20.9	C	54.9	F	19.2	C	47.6	E	19.2	C	47.6	E	19.2	C	47.6	E
Eastbound Thru plus Right Turn	---	---	---	---	9.7	A	11.5	B	9.5	A	11.3	B	9.5	A	11.3	B	9.5	A	11.3	B
Westbound Left Turn plus Thru plus Right Turn	12.5	B	15.4	C	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Westbound Left Turn	---	---	---	---	26.4	D	54.0	F	24.0	C	45.3	E	24.0	C	45.3	E	24.0	C	45.3	E
Westbound Thru plus Right Turn	---	---	---	---	11.2	B	11.6	B	11.0	B	11.2	B	11.0	B	11.2	B	11.0	B	11.2	B
Southbound Left Turn	8.1	A	0.0	A	9.4	A	9.9	A	9.2	A	9.6	A	9.2	A	9.6	A	9.2	A	9.6	A
Southbound Thru	0.0	A	0.0	A	0.1	A	0.6	A	0.1	A	0.5	A	0.1	A	0.5	A	0.1	A	0.5	A
3rd Street / Boswell Drive									This intersection is signalized in this scenario.				This intersection is signalized in this scenario.				This intersection is signalized in this scenario.			
Northbound Left Turn	---	---	---	---	8.2	A	9.4	A												
Eastbound Left Turn	---	---	---	---	22.4	C	65.1	F												
Eastbound Thru plus Right Turn	---	---	---	---	21.6	C	29.8	D												
Westbound Left Turn	16.1	C	21.3	C	34.4	D	105.1	F												
Westbound Right Turn	10.1	B	10.3	B	---	---	---	---												
Westbound Thru plus Right Turn	---	---	---	---	11.8	B	17	C												
Southbound Left Turn	8.5	A	8.8	A	9.4	A	10.2	B												
3rd Street / I-80 Ramps					This intersection is signalized in this scenario.				This intersection is signalized in this scenario.				This intersection is signalized in this scenario.				This intersection is signalized in this scenario.			
Westbound Left Turn plus Right Turn	15.4	C	18.3	C																
Southbound Left Turn	8.7	A	8.8	A																

Roundabout	Existing				Do Nothing Alternative				Alternative 1				Alternative 2				Alternative 3			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3rd Street / Bill Nye Avenue / I-80 Ramps	This intersection does not exist.				This intersection does not exist.				This intersection does not exist in this scenario.				This intersection does not exist in this scenario.				11.7	B	23.9	C
Eastbound Bill Nye Avenue																	5.9	A	10.2	B
Westbound Bill Nye Avenue																	13.3	B	14.9	B
Northbound 3rd Street																	13.2	B	18.3	C
Southbound 3rd Street																	9.1	A	33.2	D
I-80 Ramps																	9.8	A	14.4	B

Wyoming Department of Transportation

Traffic Program

Safety & Studies Section

Intersection: 3rd & Russell
Counted By: Miovision
Weather: Rainy/ Clear
Comments:

File Name : 3rd & Russell
Site Code : 00000000
Start Date : 9/27/2012
Page No : 1

Groups Printed- All Vehicles

	3rd Northbound					3rd Southbound					Russell Eastbound					Russell Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	41	9	0	50	4	45	0	0	49	0	1	0	0	1	10	0	11	0	21	121
07:15 AM	1	69	29	0	99	9	34	0	0	43	1	1	1	0	3	21	1	12	0	34	179
07:30 AM	0	84	29	0	113	11	30	2	0	43	0	0	0	0	0	22	4	16	0	42	198
07:45 AM	1	85	44	0	130	6	51	1	0	58	4	1	0	0	5	38	2	20	0	60	253
Total	2	279	111	0	392	30	160	3	0	193	5	3	1	0	9	91	7	59	0	157	751
08:00 AM	0	73	25	0	98	12	62	0	0	74	1	2	0	0	3	46	2	12	0	60	235
08:15 AM	0	65	15	0	80	13	41	1	0	55	1	1	0	0	2	20	1	12	0	33	170
08:30 AM	1	55	13	0	69	7	58	1	0	66	0	2	0	0	2	14	1	15	0	30	167
08:45 AM	2	65	20	0	87	6	52	3	0	61	1	5	2	0	8	18	3	11	0	32	188
Total	3	258	73	0	334	38	213	5	0	256	3	10	2	0	15	98	7	50	0	155	760
11:00 AM	0	58	21	0	79	11	57	0	0	68	2	6	3	0	11	14	1	9	0	24	182
11:15 AM	1	71	16	0	88	17	66	2	0	85	0	1	1	0	2	18	3	9	0	30	205
11:30 AM	0	61	29	0	90	11	76	4	0	91	2	1	2	0	5	25	3	13	0	41	227
11:45 AM	0	75	17	0	92	19	77	1	0	97	0	4	0	0	4	26	3	19	0	48	241
Total	1	265	83	0	349	58	276	7	0	341	4	12	6	0	22	83	10	50	0	143	855
12:00 PM	0	63	21	0	84	30	88	2	0	120	2	10	2	0	14	40	3	13	0	56	274
12:15 PM	0	60	21	0	81	11	93	2	0	106	0	1	1	0	2	26	3	18	0	47	236
12:30 PM	0	57	20	0	77	16	62	0	0	78	1	0	0	0	1	24	0	23	0	47	203
12:45 PM	1	83	23	0	107	20	72	2	0	94	3	1	1	0	5	20	4	24	0	48	254
Total	1	263	85	0	349	77	315	6	0	398	6	12	4	0	22	110	10	78	0	198	967
03:30 PM	1	91	15	0	107	17	81	2	0	100	2	5	2	0	9	25	6	17	0	48	264
03:45 PM	1	66	22	0	89	13	78	0	0	91	2	3	2	0	7	24	2	19	0	45	232
Total	2	157	37	0	196	30	159	2	0	191	4	8	4	0	16	49	8	36	0	93	496
04:00 PM	1	72	41	0	114	19	77	3	0	99	0	1	0	0	1	23	1	14	0	38	252
04:15 PM	0	73	33	0	106	27	67	4	0	98	1	1	1	0	3	28	3	16	0	47	254
04:30 PM	0	109	44	0	153	31	77	1	0	109	1	8	3	0	12	27	2	27	0	56	330
04:45 PM	1	82	37	0	120	20	86	2	0	108	3	6	3	0	12	32	4	28	0	64	304
Total	2	336	155	0	493	97	307	10	0	414	5	16	7	0	28	110	10	85	0	205	1140
05:00 PM	2	104	46	0	152	32	111	3	0	146	2	8	2	0	12	41	1	15	0	57	367
05:15 PM	1	72	28	0	101	26	90	0	0	116	1	7	0	0	8	46	1	12	0	59	284
Grand Total	14	1734	618	0	2366	388	1631	36	0	2055	30	76	26	0	132	628	54	385	0	1067	5620
Apprch %	0.6	73.3	26.1	0		18.9	79.4	1.8	0		22.7	57.6	19.7	0		58.9	5.1	36.1	0		
Total %	0.2	30.9	11	0	42.1	6.9	29	0.6	0	36.6	0.5	1.4	0.5	0	2.3	11.2	1	6.9	0	19	

Wyoming Department of Transportation

Traffic Program

Safety & Studies Section

Intersection: 3rd & Russell
Counted By: Miovision
Weather: Rainy/ Clear
Comments:

File Name : 3rd & Russell
Site Code : 00000000
Start Date : 9/27/2012
Page No : 2

	3rd Northbound					3rd Southbound					Russell Eastbound					Russell Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**1**	69	29	0	99	9	34	0	0	43	1	1	**1**	0	3	21	1	12	0	34	179
07:30 AM	0	84	29	0	113	11	30	**2**	0	43	0	0	0	0	0	22	**4**	16	0	42	198
07:45 AM	1	**85**	**44**	0	**130**	6	51	1	0	58	**4**	1	0	0	**5**	38	2	**20**	0	**60**	**253**
08:00 AM	0	73	25	0	98	**12**	**62**	0	0	**74**	1	**2**	0	0	3	**46**	2	12	0	60	235
Total Volume	2	311	127	0	440	38	177	3	0	218	6	4	1	0	11	127	9	60	0	196	865
% App. Total	0.5	70.7	28.9	0		17.4	81.2	1.4	0		54.5	36.4	9.1	0		64.8	4.6	30.6	0		
PHF	.500	.915	.722	.000	.846	.792	.714	.375	.000	.736	.375	.500	.250	.000	.550	.690	.563	.750	.000	.817	.855
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	61	**29**					**4**			**2**		**2**				**3**				
11:45 AM	0	**75**	17	0	**92**	19	77	1	0	97	0	4	0	0	4	26	3	**19**	0	48	241
12:00 PM	0	63	21	0	84	**30**	88	2	0	**120**	2	**10**	2	0	**14**	**40**	3	13	0	**56**	**274**
12:15 PM	0	60	21	0	81	11	**93**	2	0	106	0	1	1	0	2	26	3	18	0	47	236
Total Volume	0	259	88	0	347	71	334	9	0	414	4	16	5	0	25	117	12	63	0	192	978
% App. Total	0	74.6	25.4	0		17.1	80.7	2.2	0		16	64	20	0		60.9	6.2	32.8	0		
PHF	.000	.863	.759	.000	.943	.592	.898	.563	.000	.863	.500	.400	.625	.000	.446	.731	1.00	.829	.000	.857	.892
Peak Hour Analysis From 02:00 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	**109**			**153**							**8**	**3**		**12**						
04:45 PM	1	82	37	0	120	20	86	2	0	108	**3**	6	3	0	12	32	**4**	**28**	0	**64**	304
05:00 PM	**2**	104	**46**	0	152	**32**	**111**	**3**	0	**146**	2	8	2	0	12	41	1	15	0	57	**367**
05:15 PM	1	72	28	0	101	26	90	0	0	116	1	7	0	0	8	**46**	1	12	0	59	284
Total Volume	4	367	155	0	526	109	364	6	0	479	7	29	8	0	44	146	8	82	0	236	1285
% App. Total	0.8	69.8	29.5	0		22.8	76	1.3	0		15.9	65.9	18.2	0		61.9	3.4	34.7	0		
PHF	.500	.842	.842	.000	.859	.852	.820	.500	.000	.820	.583	.906	.667	.000	.917	.793	.500	.732	.000	.922	.875

All Traffic Data Services,Inc.
9660 W 44th Ave
Wheat Ridge,CO 80033
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File Name : #3 3RD&SANDERSAM
Site Code : 1
Start Date : 5/12/2015
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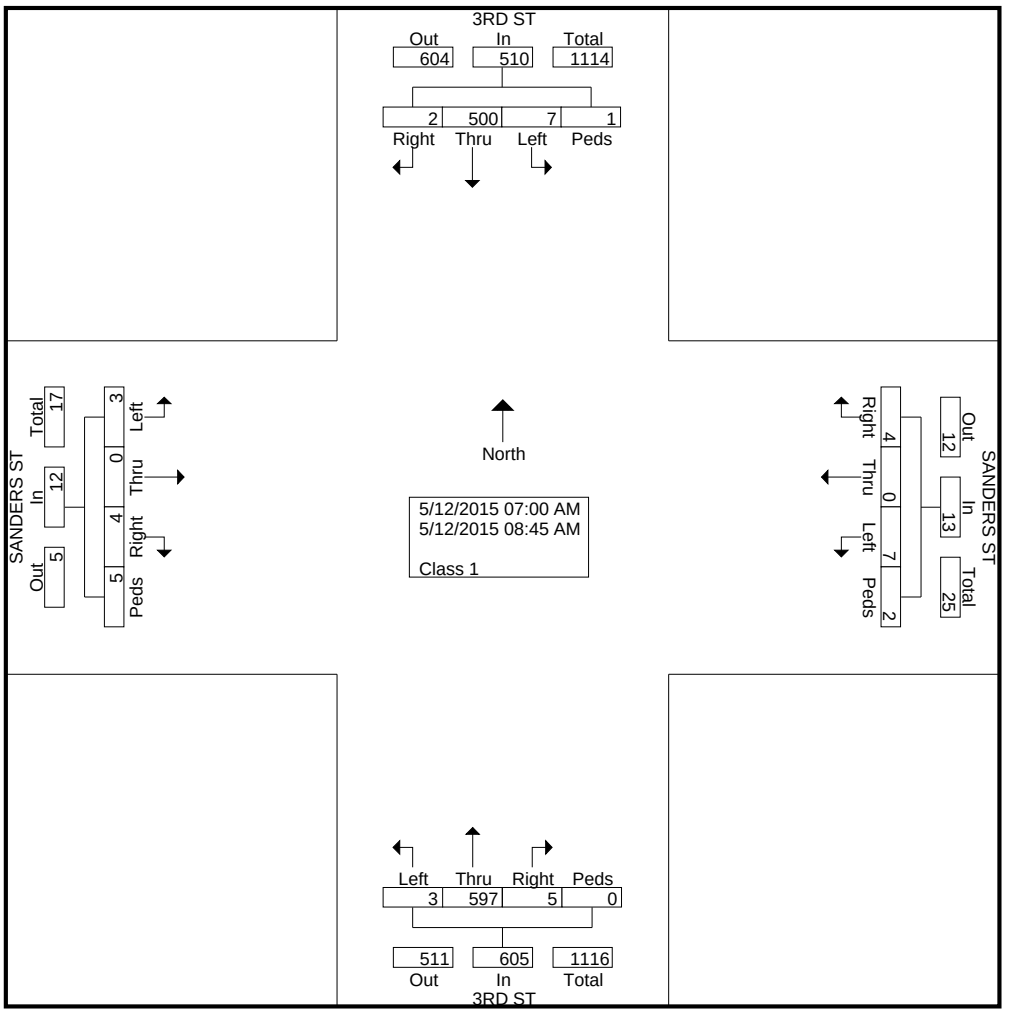
Groups Printed- Class 1

	3RD ST Southbound				SANDERS ST Westbound				3RD ST Northbound				SANDERS ST Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
07:00 AM	0	61	0	0	2	0	1	0	1	98	1	0	1	0	0	0	165
07:15 AM	0	65	1	0	0	0	0	0	2	72	0	0	0	0	1	0	141
07:30 AM	0	67	3	0	0	0	2	0	1	71	0	0	0	0	0	0	144
07:45 AM	0	65	0	0	0	0	2	2	1	76	1	0	0	0	0	0	147
Total	0	258	4	0	2	0	5	2	5	317	2	0	1	0	1	0	597
08:00 AM	1	61	0	0	1	0	2	0	0	59	0	0	1	0	1	0	126
08:15 AM	0	59	0	1	0	0	0	0	0	71	0	0	0	0	0	3	134
08:30 AM	0	59	0	0	1	0	0	0	0	79	0	0	1	0	0	2	142
08:45 AM	1	63	3	0	0	0	0	0	0	71	1	0	1	0	1	0	141
Total	2	242	3	1	2	0	2	0	0	280	1	0	3	0	2	5	543
Grand Total	2	500	7	1	4	0	7	2	5	597	3	0	4	0	3	5	1140
Apprch %	0.4	98	1.4	0.2	30.8	0	53.8	15.4	0.8	98.7	0.5	0	33.3	0	25	41.7	
Total %	0.2	43.9	0.6	0.1	0.4	0	0.6	0.2	0.4	52.4	0.3	0	0.4	0	0.3	0.4	



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File Name : #3 3RD&SANDERSAM
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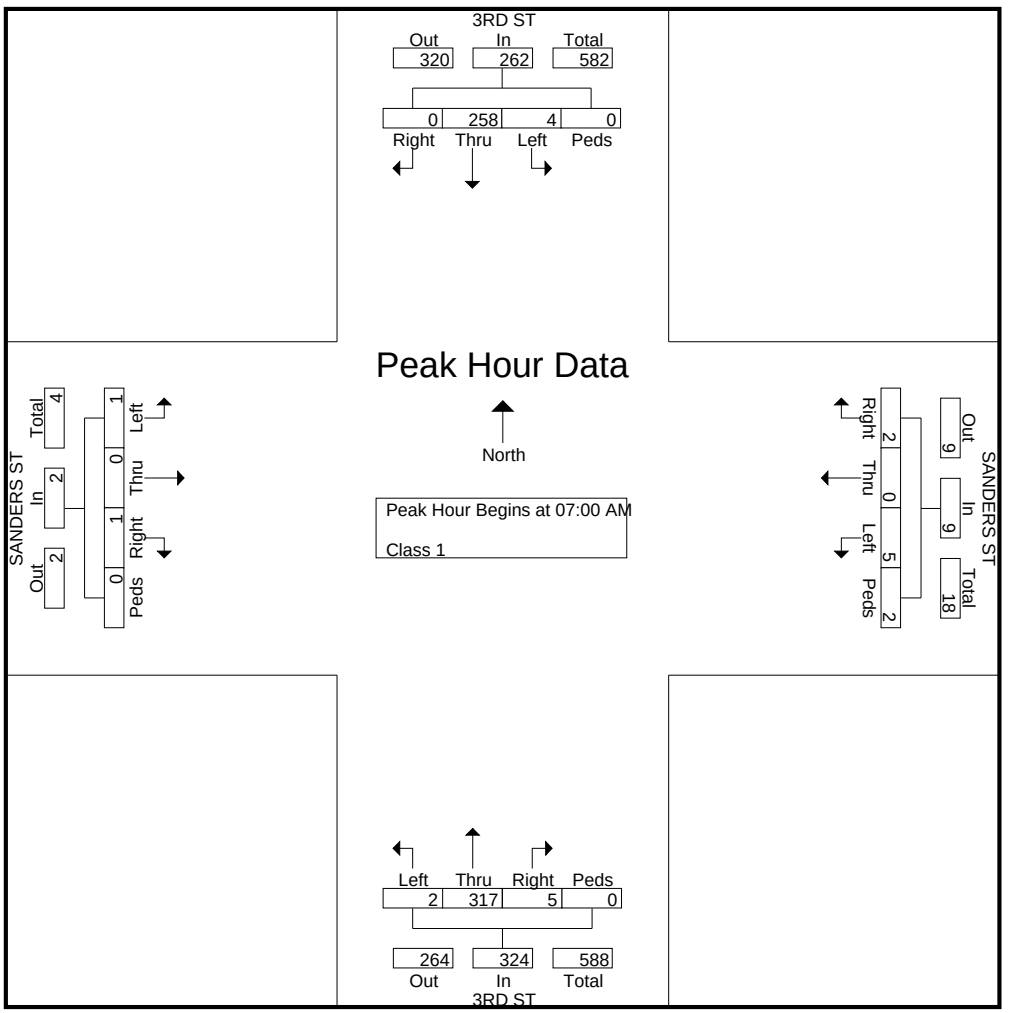
	3RD ST Southbound					SANDERS ST Westbound					3RD ST Northbound					SANDERS ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	61	0	0	61	2	0	1	0	3	1	98	1	0	100	1	0	0	0	1	165
07:15 AM	0	65	1	0	66	0	0	0	0	0	2	72	0	0	74	0	0	1	0	1	141
07:30 AM	0	67	3	0	70	0	0	2	0	2	1	71	0	0	72	0	0	0	0	0	144
07:45 AM	0	65	0	0	65	0	0	2	2	4	1	76	1	0	78	0	0	0	0	0	147
Total Volume	0	258	4	0	262	2	0	5	2	9	5	317	2	0	324	1	0	1	0	2	597
% App. Total	0	98.5	1.5	0		22.2	0	55.6	22.2		1.5	97.8	0.6	0		50	0	50	0		
PHF	.000	.963	.333	.000	.936	.250	.000	.625	.250	.563	.625	.809	.500	.000	.810	.250	.000	.250	.000	.500	.905



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File Name : #3 3RD&SANDERSPM
Site Code : 1
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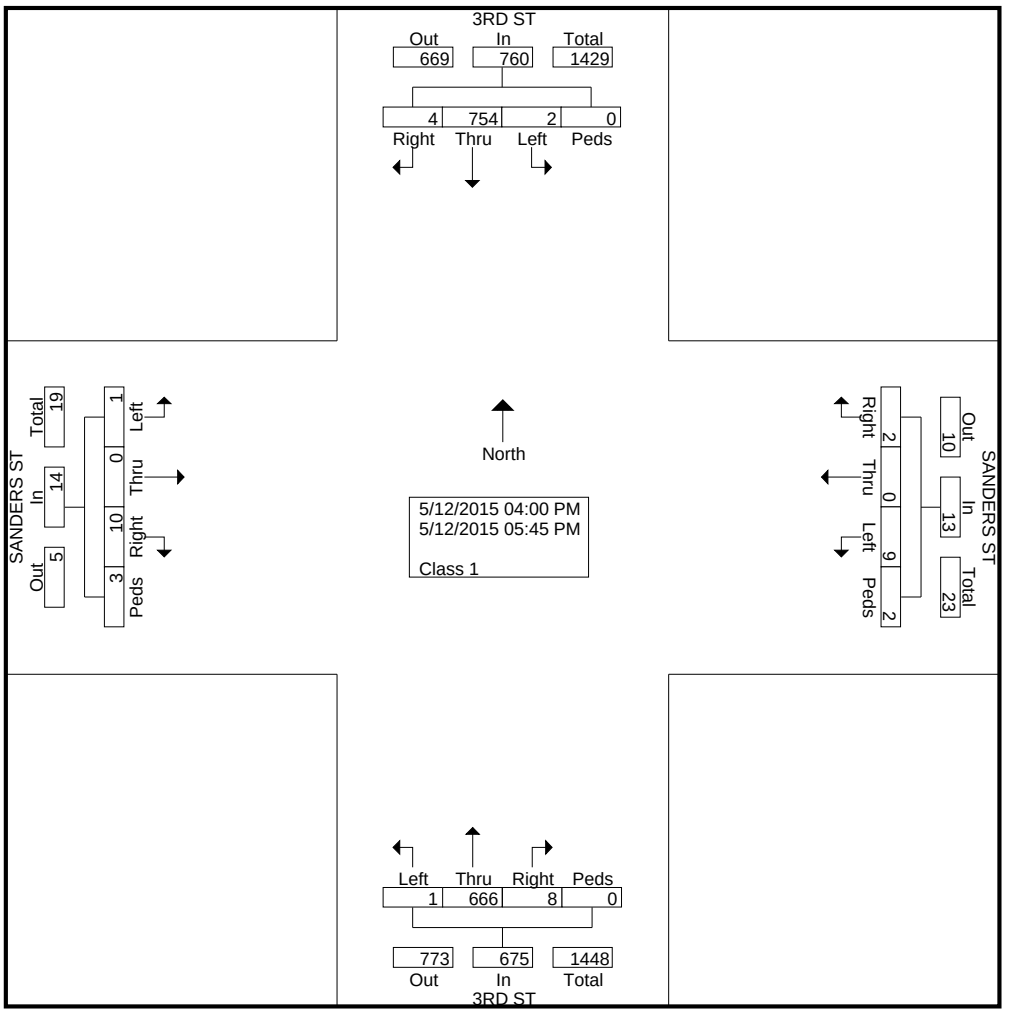
Groups Printed- Class 1

	3RD ST Southbound				SANDERS ST Westbound				3RD ST Northbound				SANDERS ST Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
04:00 PM	1	134	0	0	0	0	1	0	1	97	0	0	1	0	0	0	235
04:15 PM	0	128	0	0	1	0	2	0	1	110	0	0	1	0	1	0	244
04:30 PM	1	108	0	0	0	0	2	0	1	83	0	0	4	0	0	0	199
04:45 PM	1	96	0	0	1	0	3	2	4	82	0	0	0	0	0	0	189
Total	3	466	0	0	2	0	8	2	7	372	0	0	6	0	1	0	867
05:00 PM	0	76	1	0	0	0	0	0	0	87	0	0	2	0	0	0	166
05:15 PM	1	72	1	0	0	0	0	0	0	78	0	0	2	0	0	0	154
05:30 PM	0	72	0	0	0	0	0	0	0	61	0	0	0	0	0	0	133
05:45 PM	0	68	0	0	0	0	1	0	1	68	1	0	0	0	0	3	142
Total	1	288	2	0	0	0	1	0	1	294	1	0	4	0	0	3	595
Grand Total	4	754	2	0	2	0	9	2	8	666	1	0	10	0	1	3	1462
Apprch %	0.5	99.2	0.3	0	15.4	0	69.2	15.4	1.2	98.7	0.1	0	71.4	0	7.1	21.4	
Total %	0.3	51.6	0.1	0	0.1	0	0.6	0.1	0.5	45.6	0.1	0	0.7	0	0.1	0.2	



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File Name : #3 3RD&SANDERSPM
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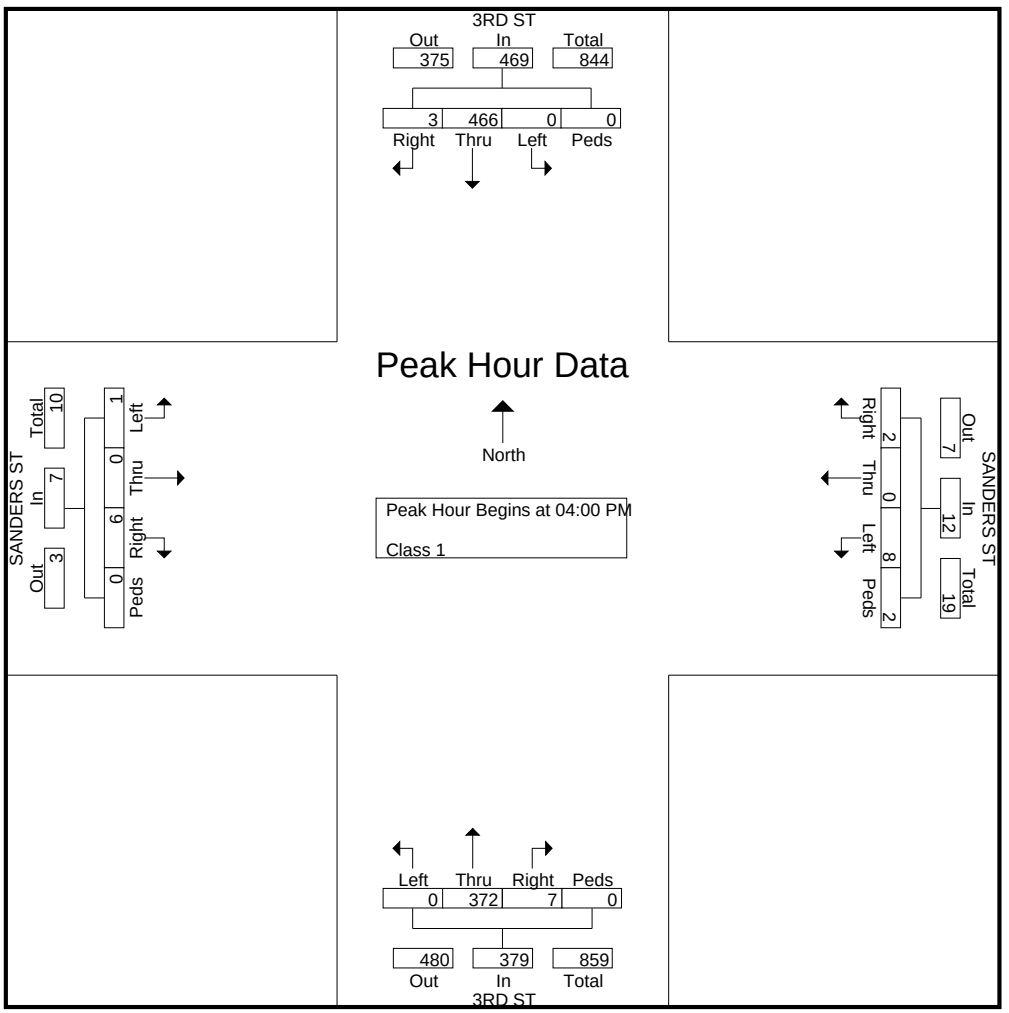
	3RD ST Southbound					SANDERS ST Westbound					3RD ST Northbound					SANDERS ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	134	0	0	135	0	0	1	0	1	1	97	0	0	98	1	0	0	0	1	235
04:15 PM	0	128	0	0	128	1	0	2	0	3	1	110	0	0	111	1	0	1	0	2	244
04:30 PM	1	108	0	0	109	0	0	2	0	2	1	83	0	0	84	4	0	0	0	4	199
04:45 PM	1	96	0	0	97	1	0	3	2	6	4	82	0	0	86	0	0	0	0	0	189
Total Volume	3	466	0	0	469	2	0	8	2	12	7	372	0	0	379	6	0	1	0	7	867
% App. Total	0.6	99.4	0	0		16.7	0	66.7	16.7		1.8	98.2	0	0		85.7	0	14.3	0		
PHF	.750	.869	.000	.000	.869	.500	.000	.667	.250	.500	.438	.845	.000	.000	.854	.375	.000	.250	.000	.438	.888



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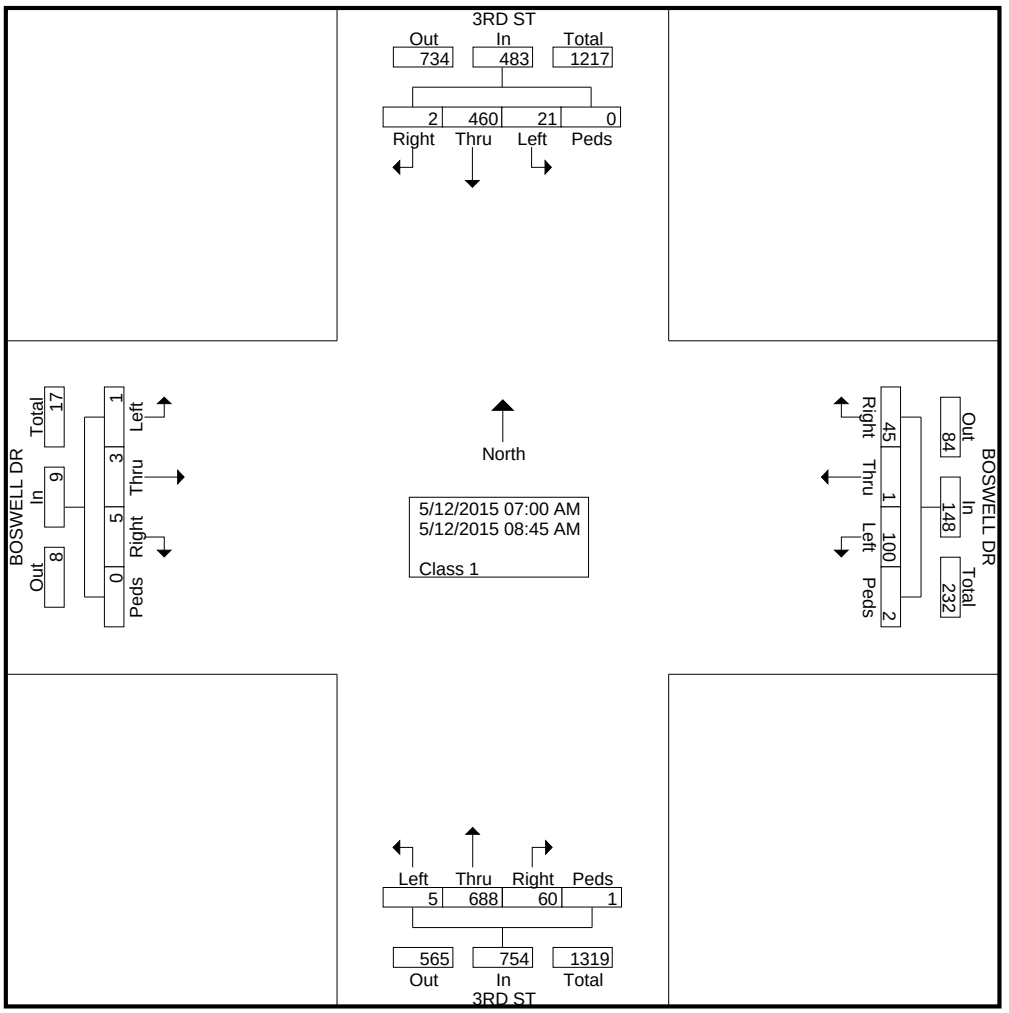
File Name : #2 3RD&BOSWELLAM
Site Code : 1
Start Date : 5/12/2015
Page No : 1

Groups Printed- Class 1

	3RD ST Southbound				BOSWELL DR Westbound				3RD ST Northbound				BOSWELL DR Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
07:00 AM	0	44	0	0	5	0	20	1	8	57	0	0	0	0	0	0	135
07:15 AM	0	44	4	0	8	0	17	1	8	81	0	0	0	0	0	0	163
07:30 AM	0	40	1	0	5	0	19	0	8	117	0	0	0	1	0	0	191
07:45 AM	0	82	4	0	7	0	9	0	5	114	3	0	0	0	0	0	224
Total	0	210	9	0	25	0	65	2	29	369	3	0	0	1	0	0	713
08:00 AM	0	65	1	0	6	0	10	0	12	99	0	0	0	0	0	0	193
08:15 AM	1	58	3	0	4	0	13	0	3	72	0	0	2	0	1	0	157
08:30 AM	0	72	3	0	4	1	5	0	7	68	1	0	0	1	0	0	162
08:45 AM	1	55	5	0	6	0	7	0	9	80	1	1	3	1	0	0	169
Total	2	250	12	0	20	1	35	0	31	319	2	1	5	2	1	0	681
Grand Total	2	460	21	0	45	1	100	2	60	688	5	1	5	3	1	0	1394
Apprch %	0.4	95.2	4.3	0	30.4	0.7	67.6	1.4	8	91.2	0.7	0.1	55.6	33.3	11.1	0	
Total %	0.1	33	1.5	0	3.2	0.1	7.2	0.1	4.3	49.4	0.4	0.1	0.4	0.2	0.1	0	



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File Name : #2 3RD&BOSWELLAM
Site Code : 1
Start Date : 5/12/2015
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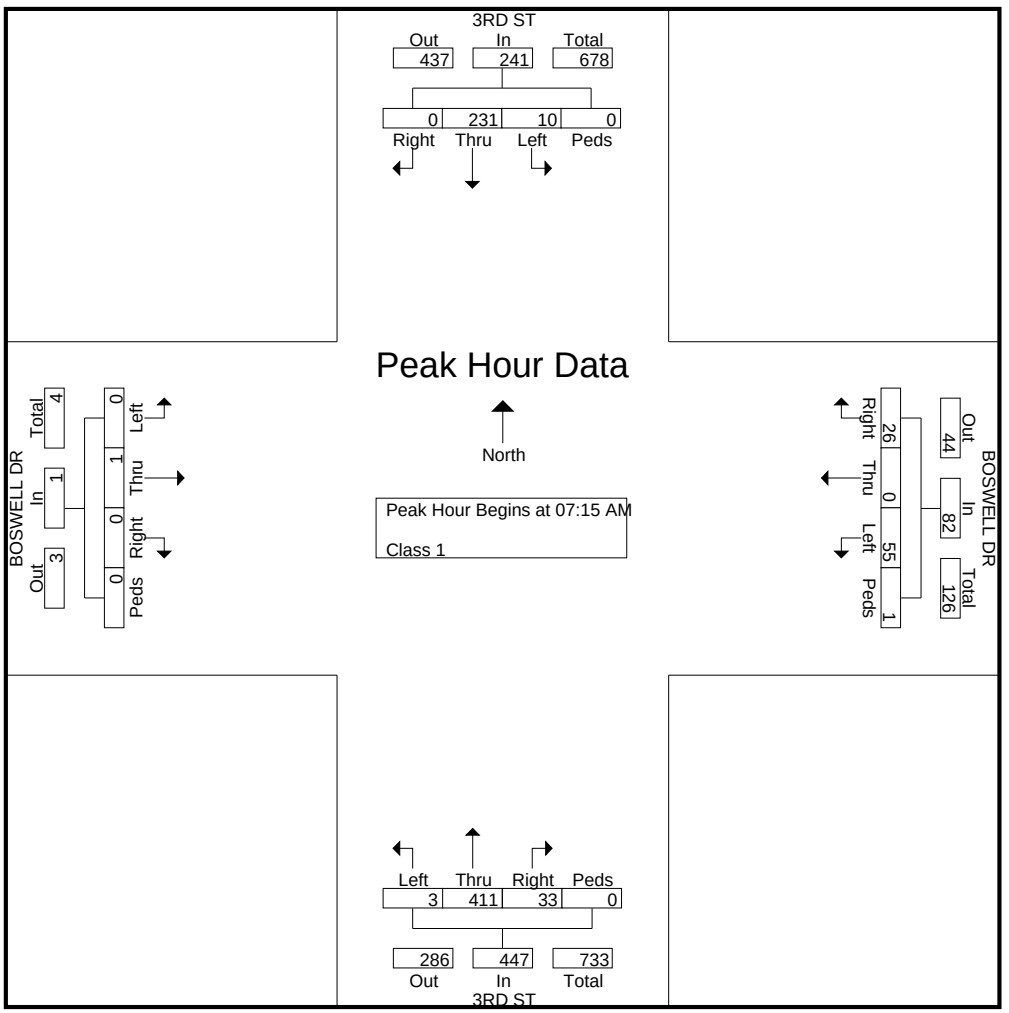
	3RD ST Southbound					BOSWELL DR Westbound					3RD ST Northbound					BOSWELL DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	44	4	0	48	8	0	17	1	26	8	81	0	0	89	0	0	0	0	0	163
07:30 AM	0	40	1	0	41	5	0	19	0	24	8	117	0	0	125	0	1	0	0	1	191
07:45 AM	0	82	4	0	86	7	0	9	0	16	5	114	3	0	122	0	0	0	0	0	224
08:00 AM	0	65	1	0	66	6	0	10	0	16	12	99	0	0	111	0	0	0	0	0	193
Total Volume	0	231	10	0	241	26	0	55	1	82	33	411	3	0	447	0	1	0	0	1	771
% App. Total	0	95.9	4.1	0		31.7	0	67.1	1.2		7.4	91.9	0.7	0		0	100	0	0		
PHF	.000	.704	.625	.000	.701	.813	.000	.724	.250	.788	.688	.878	.250	.000	.894	.000	.250	.000	.000	.250	.860



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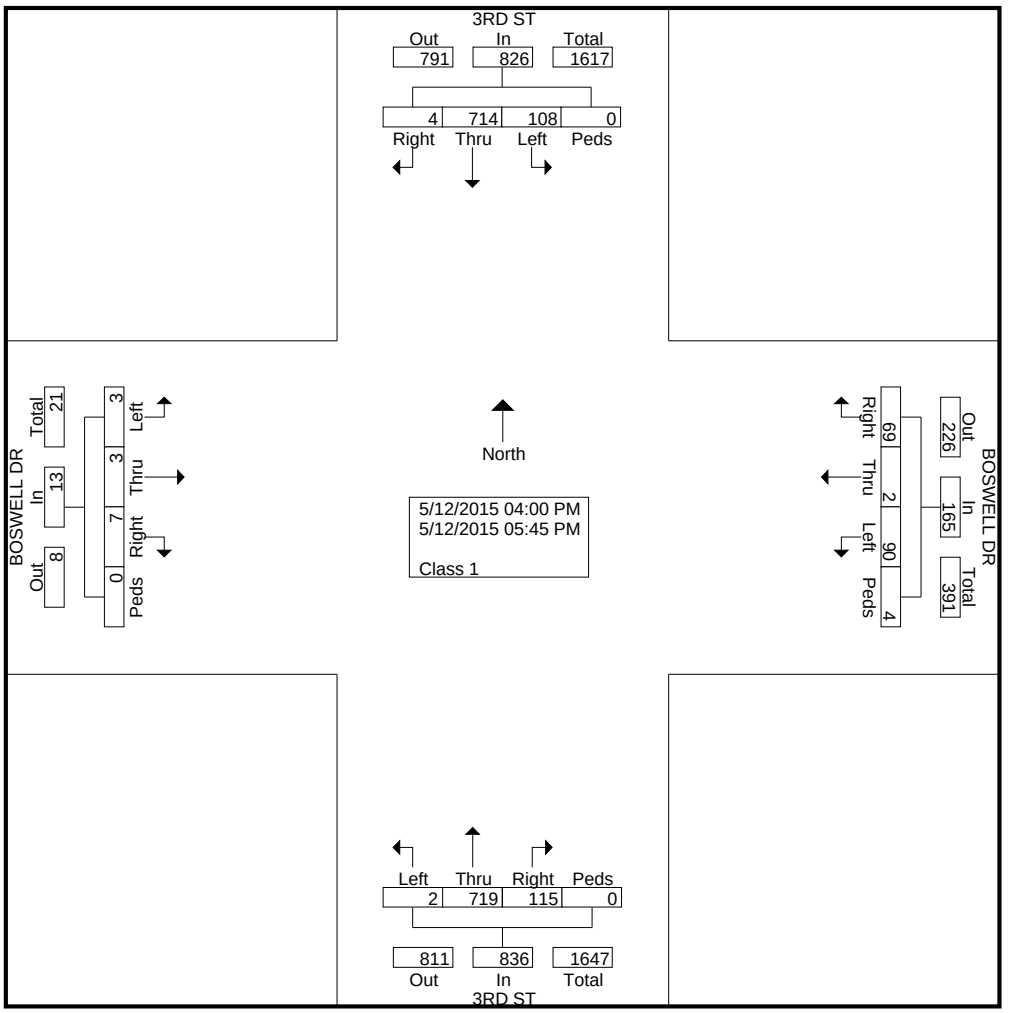
File Name : #2 3RD&BOSWELLPM
Site Code : 1
Start Date : 5/12/2015
Page No : 1

Groups Printed- Class 1

	3RD ST Southbound				BOSWELL DR Westbound				3RD ST Northbound				BOSWELL DR Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
04:00 PM	0	103	9	0	7	0	7	0	10	87	1	0	0	0	0	0	224
04:15 PM	0	76	7	0	6	0	16	0	19	77	0	0	1	0	0	0	202
04:30 PM	0	75	9	0	6	1	10	0	16	107	0	0	0	0	0	0	224
04:45 PM	3	92	16	0	6	1	13	0	13	104	1	0	3	1	0	0	253
Total	3	346	41	0	25	2	46	0	58	375	2	0	4	1	0	0	903
05:00 PM	0	104	14	0	8	0	9	0	24	84	0	0	1	0	1	0	245
05:15 PM	1	98	15	0	7	0	13	0	13	115	0	0	2	1	1	0	266
05:30 PM	0	82	20	0	18	0	12	4	11	67	0	0	0	0	0	0	214
05:45 PM	0	84	18	0	11	0	10	0	9	78	0	0	0	1	1	0	212
Total	1	368	67	0	44	0	44	4	57	344	0	0	3	2	3	0	937
Grand Total	4	714	108	0	69	2	90	4	115	719	2	0	7	3	3	0	1840
Apprch %	0.5	86.4	13.1	0	41.8	1.2	54.5	2.4	13.8	86	0.2	0	53.8	23.1	23.1	0	
Total %	0.2	38.8	5.9	0	3.8	0.1	4.9	0.2	6.2	39.1	0.1	0	0.4	0.2	0.2	0	



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File Name : #2 3RD&BOSWELLPM
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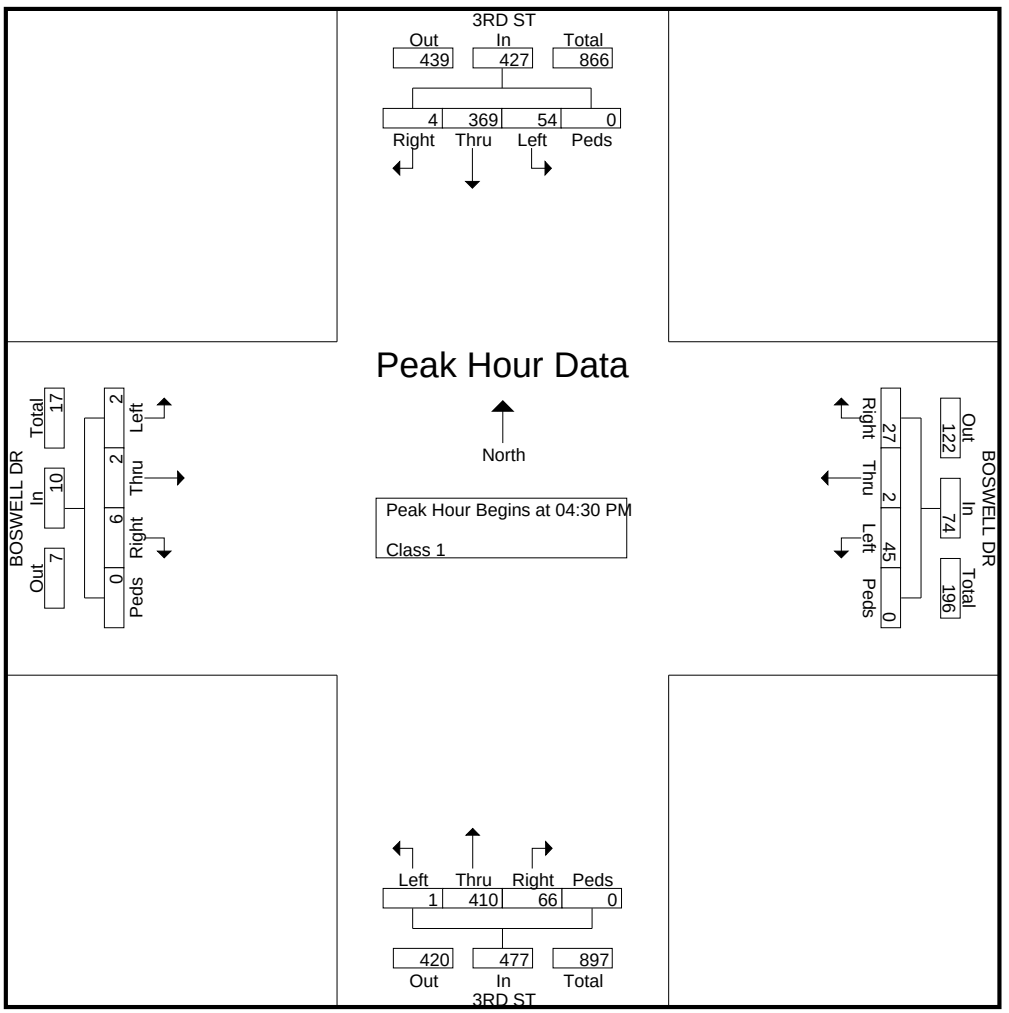
Start Date : 5/12/2015
Page No : 2

	3RD ST Southbound					BOSWELL DR Westbound					3RD ST Northbound					BOSWELL DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	75	9	0	84	6	1	10	0	17	16	107	0	0	123	0	0	0	0	0	224
04:45 PM	3	92	16	0	111	6	1	13	0	20	13	104	1	0	118	3	1	0	0	4	253
05:00 PM	0	104	14	0	118	8	0	9	0	17	24	84	0	0	108	1	0	1	0	2	245
05:15 PM	1	98	15	0	114	7	0	13	0	20	13	115	0	0	128	2	1	1	0	4	266
Total Volume	4	369	54	0	427	27	2	45	0	74	66	410	1	0	477	6	2	2	0	10	988
% App. Total	0.9	86.4	12.6	0		36.5	2.7	60.8	0		13.8	86	0.2	0		60	20	20	0		
PHF	.333	.887	.844	.000	.905	.844	.500	.865	.000	.925	.688	.891	.250	.000	.932	.500	.500	.500	.000	.625	.929



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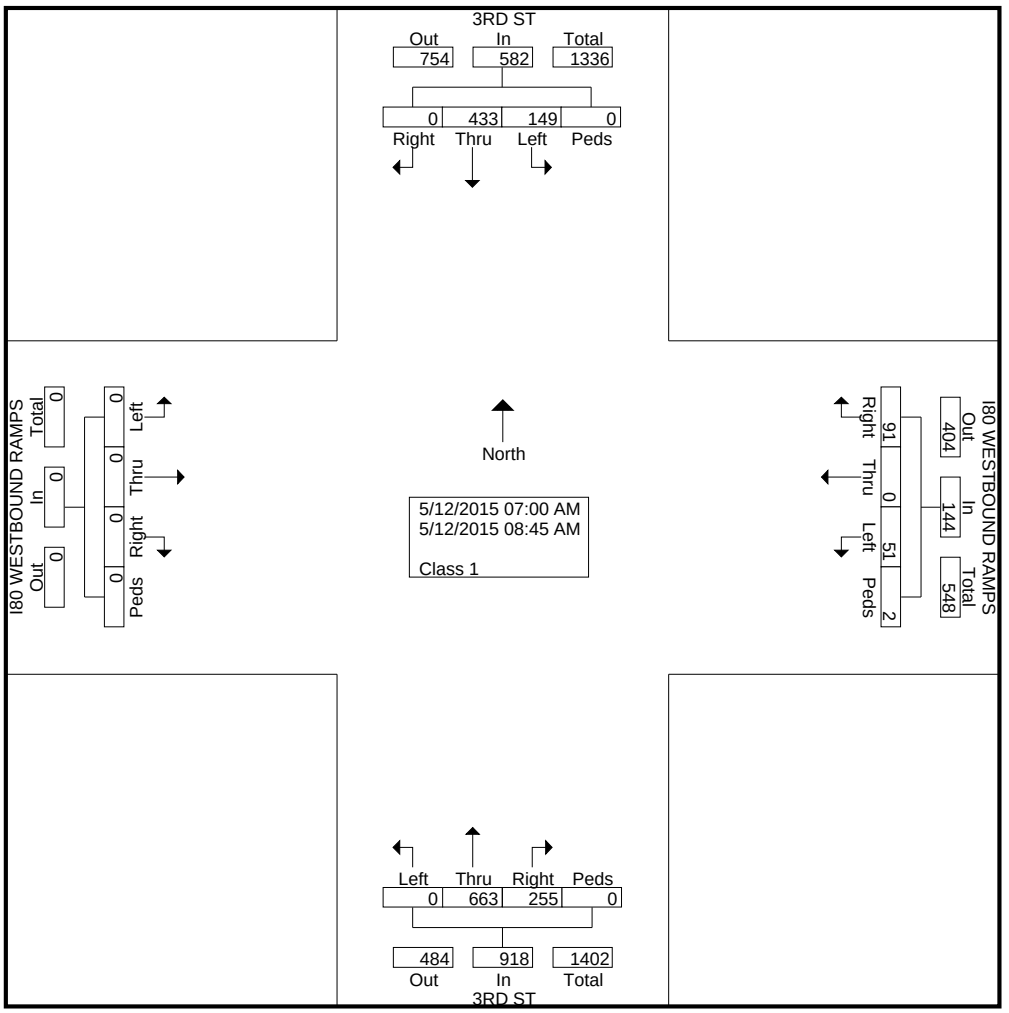
File Name : #1 3RD&I80WESTBOUNDRAMPSAM
Site Code : 1
Start Date : 5/12/2015
Page No : 1

Groups Printed- Class 1

	3RD ST Southbound				I80 WESTBOUND RAMPS Westbound				3RD ST Northbound				I80 WESTBOUND RAMPS Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
07:00 AM	0	45	15	0	13	0	2	1	40	56	0	0	0	0	0	0	172
07:15 AM	0	44	19	0	11	0	5	1	36	84	0	0	0	0	0	0	200
07:30 AM	0	45	24	0	11	0	6	0	31	117	0	0	0	0	0	0	234
07:45 AM	0	68	21	0	16	0	13	0	36	102	0	0	0	0	0	0	256
Total	0	202	79	0	51	0	26	2	143	359	0	0	0	0	0	0	862
08:00 AM	0	58	22	0	7	0	13	0	24	101	0	0	0	0	0	0	225
08:15 AM	0	57	16	0	9	0	3	0	26	62	0	0	0	0	0	0	173
08:30 AM	0	60	19	0	12	0	6	0	24	65	0	0	0	0	0	0	186
08:45 AM	0	56	13	0	12	0	3	0	38	76	0	0	0	0	0	0	198
Total	0	231	70	0	40	0	25	0	112	304	0	0	0	0	0	0	782
Grand Total	0	433	149	0	91	0	51	2	255	663	0	0	0	0	0	0	1644
Apprch %	0	74.4	25.6	0	63.2	0	35.4	1.4	27.8	72.2	0	0	0	0	0	0	
Total %	0	26.3	9.1	0	5.5	0	3.1	0.1	15.5	40.3	0	0	0	0	0	0	



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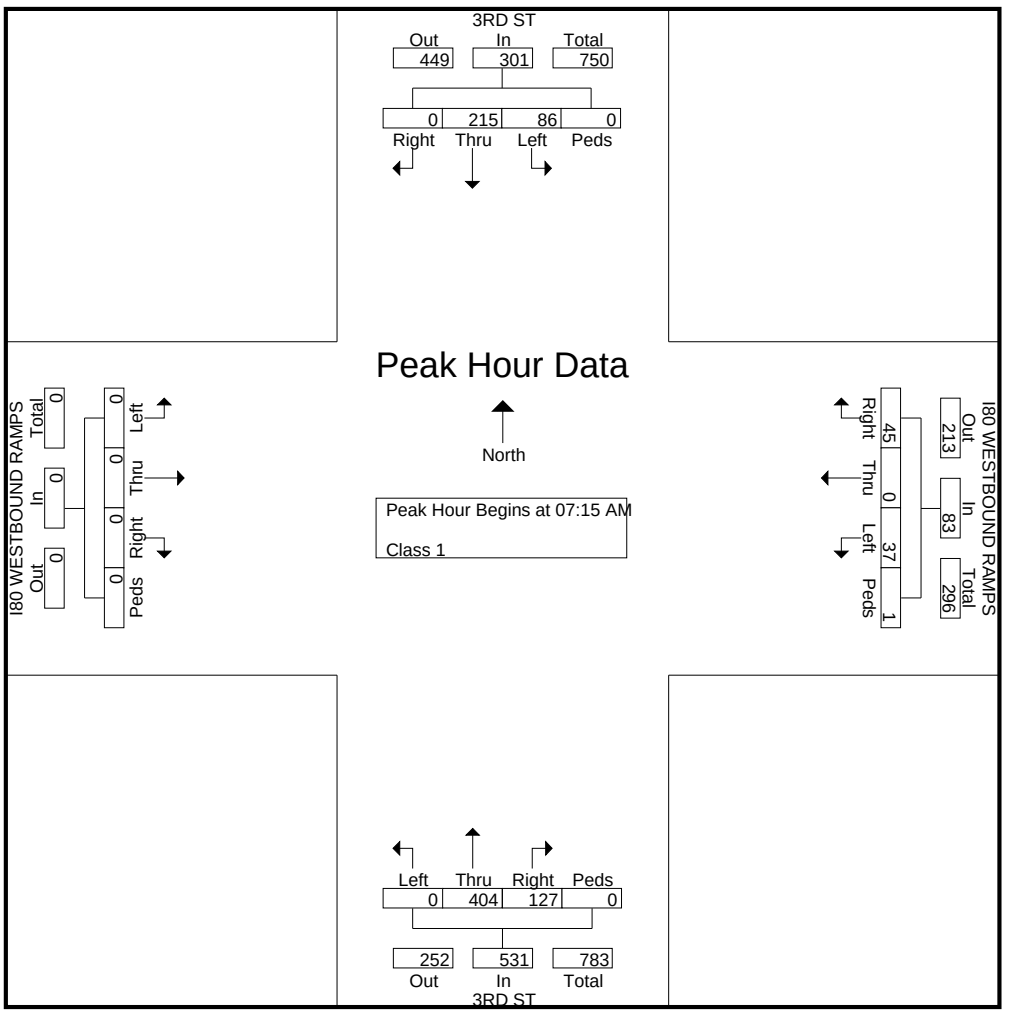
File Name : #1 3RD&I80WESTBOUNDRAMPSAM
Site Code : 1
Start Date : 5/12/2015
Page No : 2

	3RD ST Southbound					I80 WESTBOUND RAMPS Westbound					3RD ST Northbound					I80 WESTBOUND RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	44	19	0	63	11	0	5	1	17	36	84	0	0	120	0	0	0	0	0	200
07:30 AM	0	45	24	0	69	11	0	6	0	17	31	117	0	0	148	0	0	0	0	0	234
07:45 AM	0	68	21	0	89	16	0	13	0	29	36	102	0	0	138	0	0	0	0	0	256
08:00 AM	0	58	22	0	80	7	0	13	0	20	24	101	0	0	125	0	0	0	0	0	225
Total Volume	0	215	86	0	301	45	0	37	1	83	127	404	0	0	531	0	0	0	0	0	915
% App. Total	0	71.4	28.6	0		54.2	0	44.6	1.2		23.9	76.1	0	0		0	0	0	0		
PHF	.000	.790	.896	.000	.846	.703	.000	.712	.250	.716	.882	.863	.000	.000	.897	.000	.000	.000	.000	.000	.894



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File Name : #1 3RD&I80WESTBOUNDRAMPSPM
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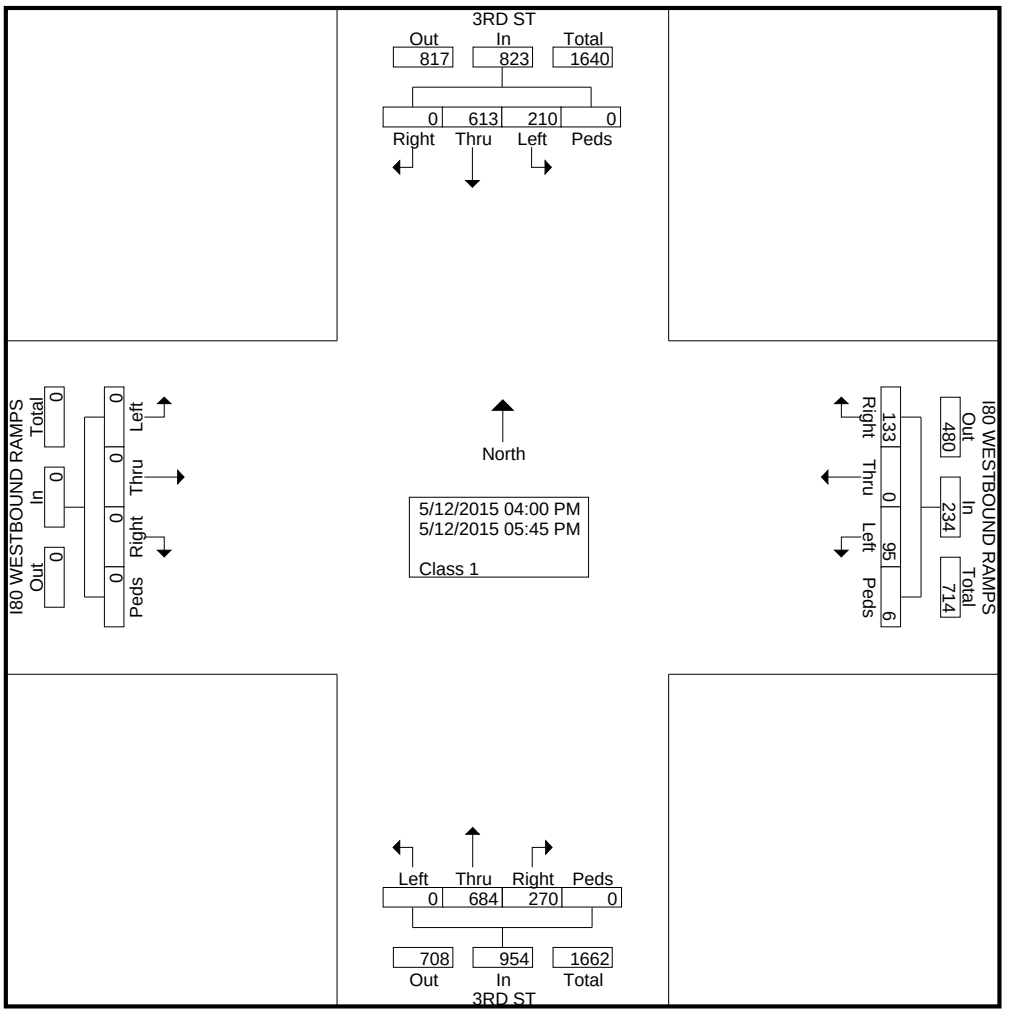
Groups Printed- Class 1

	3RD ST Southbound				I80 WESTBOUND RAMPS Westbound				3RD ST Northbound				I80 WESTBOUND RAMPS Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
04:00 PM	0	81	19	0	12	0	17	0	48	88	0	0	0	0	0	0	265
04:15 PM	0	80	20	0	21	0	12	2	48	72	0	0	0	0	0	0	255
04:30 PM	0	52	27	0	15	0	10	0	48	105	0	0	0	0	0	0	257
04:45 PM	0	81	30	0	17	0	11	0	28	94	0	0	0	0	0	0	261
Total	0	294	96	0	65	0	50	2	172	359	0	0	0	0	0	0	1038
05:00 PM	0	98	29	0	16	0	11	2	22	97	0	0	0	0	0	0	275
05:15 PM	0	85	30	0	17	0	13	0	36	101	0	0	0	0	0	0	282
05:30 PM	0	77	22	0	16	0	8	1	13	61	0	0	0	0	0	0	198
05:45 PM	0	59	33	0	19	0	13	1	27	66	0	0	0	0	0	0	218
Total	0	319	114	0	68	0	45	4	98	325	0	0	0	0	0	0	973
Grand Total	0	613	210	0	133	0	95	6	270	684	0	0	0	0	0	0	2011
Apprch %	0	74.5	25.5	0	56.8	0	40.6	2.6	28.3	71.7	0	0	0	0	0	0	
Total %	0	30.5	10.4	0	6.6	0	4.7	0.3	13.4	34	0	0	0	0	0	0	



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File Name : #1 3RD&I80WESTBOUNDRAMPSPM
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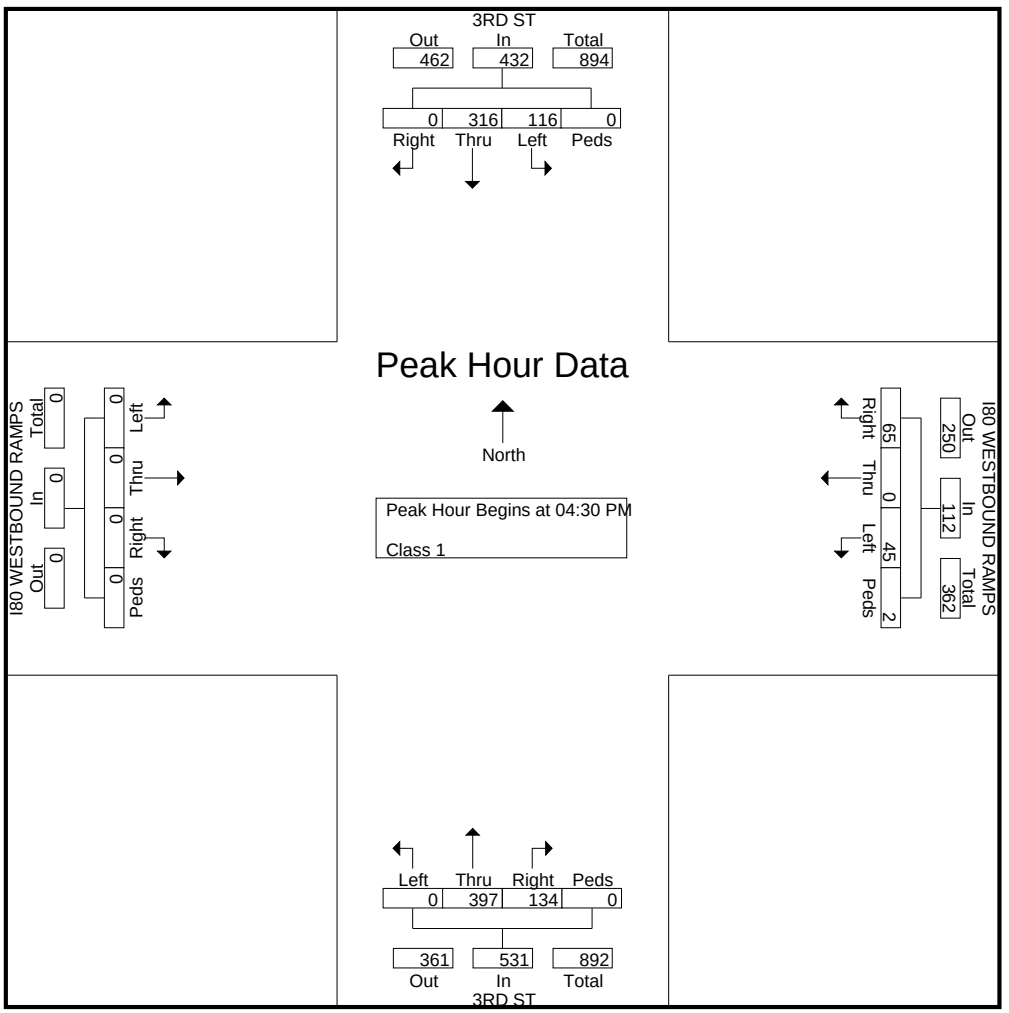
Start Date : 5/12/2015
Page No : 2

	3RD ST Southbound					I80 WESTBOUND RAMPS Westbound					3RD ST Northbound					I80 WESTBOUND RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	52	27	0	79	15	0	10	0	25	48	105	0	0	153	0	0	0	0	0	257
04:45 PM	0	81	30	0	111	17	0	11	0	28	28	94	0	0	122	0	0	0	0	0	261
05:00 PM	0	98	29	0	127	16	0	11	2	29	22	97	0	0	119	0	0	0	0	0	275
05:15 PM	0	85	30	0	115	17	0	13	0	30	36	101	0	0	137	0	0	0	0	0	282
Total Volume	0	316	116	0	432	65	0	45	2	112	134	397	0	0	531	0	0	0	0	0	1075
% App. Total	0	73.1	26.9	0		58	0	40.2	1.8		25.2	74.8	0	0		0	0	0	0		
PHF	.000	.806	.967	.000	.850	.956	.000	.865	.250	.933	.698	.945	.000	.000	.868	.000	.000	.000	.000	.000	.953



Traffic Signal Warrant Analysis

Project Name	**Bill Nye Corridor Study**
Project/File #	**City of Laramie**
Scenario	**Year 2035 Total - Do Nothing**

Intersection Information	
Major Street Name	3rd Street
North/South or East/West	N/S
Speed Limit	35 mph or less
# of Approach Lanes	2 or more
% of Right Turn Traffic to Include	100%
Minor Street Name	Boswell Drive
# of Approach Lanes	2 or more
% of Right Turn Traffic to Include	100%
Isolated Community < 10,000 pop	No

What Additional Warrants to Consider?	
Warrant 3, Peak Hour (A - Vol. and Delay)	Yes
Warrant 4, Pedestrian Volume	No
Warrant 5, School Crossing	No
Warrant 6, Coordinated Signal System	No
Warrant 7, Crash Experience	No
Warrant 8, Roadway Network	No
Warrant 9, Intersection Near a Grade Crossing	No
All-Way Stop Warrant	No

Sustainable Traffic Solutions, Inc.

Traffic Signal Warrant Analysis

3rd Street (Major Street) Volume

Northbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	5	610	20	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	5	640	65	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			1,345	0

Southbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	30	365	5	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	85	660	10	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			1,155	0

Boswell Drive (Minor Street) Volume

Eastbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	3	2	1	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	15	5	10	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			36	0

Westbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	50	1	55	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	45	5	65	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			221	0

Traffic Signal Warrant Analysis

Additional Inputs for Warrants 3 to 9 and the Multi-Way Stop Warrants

Warrant 3: Peak Hour Delay Additional Information	
T-intersection or 4-legged?	4
Peak Hour Reviewed?	PM
3rd Street (Major Street) Data	
Combined Approach Volume	1,610
Boswell Drive (Minor Street) Data	
High Volume Side Volume	115
High Volume Side Average Delay (Sec.)	105.1
High Volume Side # of Approach Lanes	2 or more
Low Volume Side Volume (leave blank if T)	30

Warrant 4: Pedestrian Volume Additional Information	
Include Right Turn Reduction for Vehicular Volume?	Yes
300 feet or more to nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross?	Yes
If no, will a traffic control signal restrict the progressive movement of traffic?*	N/A
15th-percentile crossing speed of pedestrians less than 3.5 feet per second?**	No
If yes, then percent reduction to apply to crossing volume? (up to 50%)	N/A

* Include supporting documentation of no progressive movement impact.

** Not common. Include supporting documentation of low crossing speed.

Warrant 5: School Crossing	
Schoolchildren (elementary through high school) crossing the major street (3rd	Yes
Consideration given to other remedial measures (warning signs/flashers, school speed zones, school crossing guards, or a grade-separated crossing)?	Yes
300 feet or more to nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross?	Yes
If no, will a traffic control signal restrict the progressive movement of traffic?*	N/A
Minimum of 20 schoolchildren crossing during the highest crossing hour?	Yes
Engineering Study completed showing the number of adequate gaps in the traffic stream during the period when schoolchildren are using the crossing is less than the number of minutes in the same period?**	No

* Include supporting documentation of no progressive movement impact.

** May need to include supporting documentation of inadequate gaps in traffic.

Warrant 6: Coordinated Signal System	
One-way or Two-way Street?	Two-Way
Adjacent traffic control signals do not provide the necessary degree of platooning, but will collectively provide a progressive operation with the proposed traffic control signal?	No
Resultant spacing of traffic control signals 1,000 feet or more?	Yes

Warrant 7: Crash Experience	
Number of reportable crashes (*types susceptible to correction by a traffic control signal*) within a 12-month period?*	4 or less
Adequate trial of alternatives with satisfactory observance and enforcement failed to reduce crash frequency?**	Yes
Include Right Turn Reduction for Vehicular Volume?	Yes

* May need to include supporting documentation of crash details.

** May need to include supporting documentation of alternative trail(s) and results.

Warrant 8: Roadway Network	
Common intersection of two major routes?*	Yes
Projected entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday?	Yes
5-Year projected traffic volumes meet one or more of Warrants 1, 2, and 3 during an average weekday?	Yes
Total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday)?	No

* Major Route defined as:

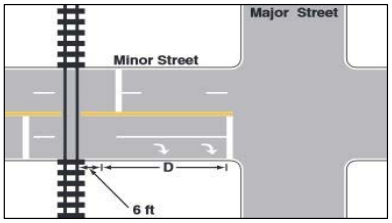
- Part of the street or highway system that serves as the principal roadway network for through traffic flow.
- Rural or suburban highways outside, entering, or traversing a city.
- Appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Warrant 9: Intersection Near a Grade Crossing	
Tracks cross which Boswell Drive approach?	Southbound
Consideration given to other alternatives/trial of alternative failed to alleviate the safety concerns?*	Yes
Distance between STOP or YIELD controlled approach and center of track nearest to the intersection within 140 feet?	Yes
Clear storage distance (Distance D) between the tracks and the intersection? (See Below)	70 feet
Number of approach lanes at the crossing?	2 or more
Rail traffic per day?	3-5
Percentage of high-occupancy buses?**	0%
Percentage of Tractor-Trailer Trucks?	7.6%-12.5%

* Alternatives to consider or try should include:

- Providing additional pavement that would enable vehicles to clear the track or provide space for an evasive maneuver.
- Reassigning the stop controls at the intersection to make the approach across the track non-stopping.

** High-occupancy is defined as a bus occupied by at least 20 people.



Multi-Way Stop Warrant Additional Information	
Traffic control signal warranted & justified with existing traffic?	Yes
Number of *correctable* crashes* in 12-month period?	4
Peak Hour high volume approach average delay (Sec.)	105.1

* Crashes include right-turn and left-turn collisions as well as right-angle collisions.

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Bill Nye Corridor Study
Project/File #	City of Laramie
Scenario	Year 2035 Total - Do Nothing

Intersection Information			
Major Street (N/S Road)	3rd Street	Minor Street (E/W Road)	Boswell Drive
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	2500 vehicles	Total Approach Volume	257 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

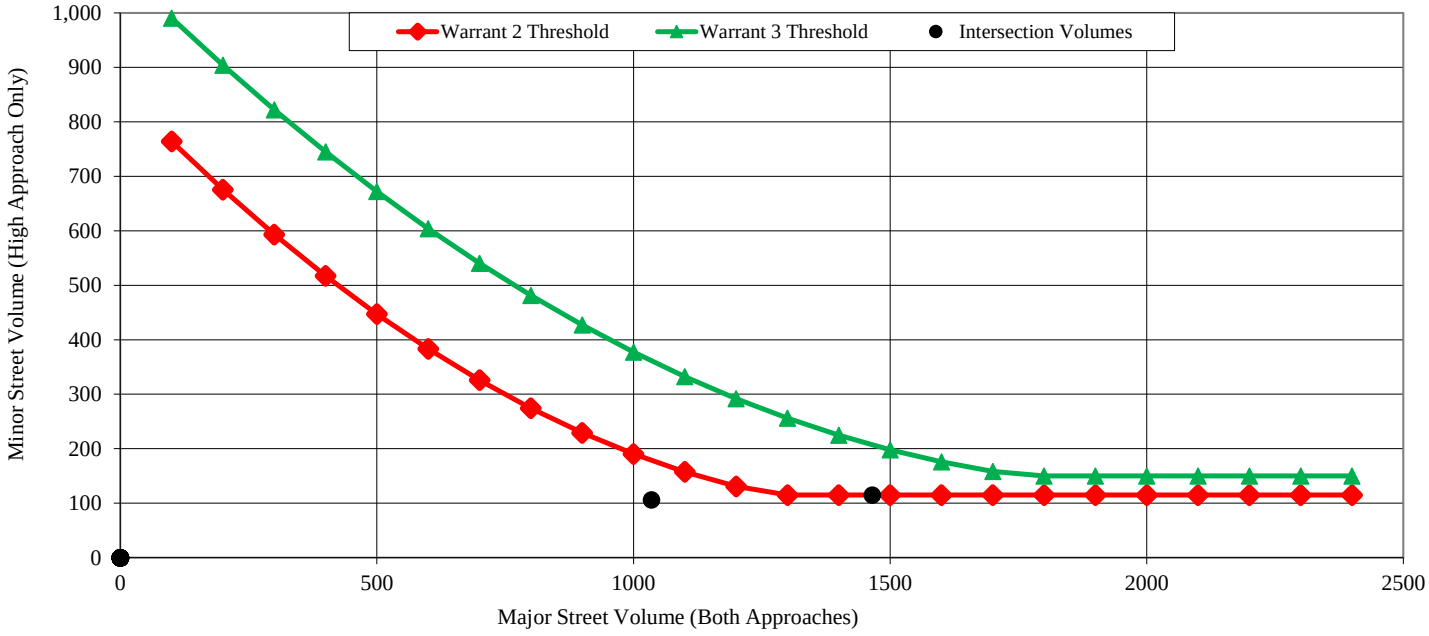
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	0 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	600	900	480 (Cond. A) & 720 (Cond. B)
Criteria - Minor Street (veh/hr)	200	100	160 (Cond. A) & 80 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**
Required values reached for	1755 total, 115 minor, 3.4 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Pedestrian Crossing Volume

Traffic Signal Warrant Analysis

Project Name	**Bill Nye Corridor Study**
Project/File #	**City of Laramie**
Scenario	**Year 2035 Total - Alts 1 & 2**

Intersection Information	
Major Street Name	3rd Street
North/South or East/West	N/S
Speed Limit	35 mph or less
# of Approach Lanes	2 or more
% of Right Turn Traffic to Include	100%
Minor Street Name	Bill Nye Avenue
# of Approach Lanes	2 or more
% of Right Turn Traffic to Include	50%
Isolated Community < 10,000 pop	No

What Additional Warrants to Consider?	
Warrant 3, Peak Hour (A - Vol. and Delay)	Yes
Warrant 4, Pedestrian Volume	No
Warrant 5, School Crossing	No
Warrant 6, Coordinated Signal System	No
Warrant 7, Crash Experience	No
Warrant 8, Roadway Network	No
Warrant 9, Intersection Near a Grade Crossing	No
All-Way Stop Warrant	No

Sustainable Traffic Solutions, Inc.

Traffic Signal Warrant Analysis

3rd Street (Major Street) Volume

Northbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	5	575	55	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	5	575	130	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			1,345	0

Southbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	70	314	5	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	170	600	10	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			1,169	0

Bill Nye Avenue (Minor Street) Volume

Eastbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	3	2	1	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	15	5	10	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			36	0

Westbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	100	1	110	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	95	5	135	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			446	0

Traffic Signal Warrant Analysis

Additional Inputs for Warrants 3 to 9 and the Multi-Way Stop Warrants

Warrant 3: Peak Hour Delay Additional Information	
T-intersection or 4-legged?	4
Peak Hour Reviewed?	PM
3rd Street (Major Street) Data	
Combined Approach Volume	1,755
Bill Nye Avenue (Minor Street) Data	
High Volume Side Volume	235
High Volume Side Average Delay (Sec.)	329.9
High Volume Side # of Approach Lanes	2 or more
Low Volume Side Volume (leave blank if T)	29

Warrant 4: Pedestrian Volume Additional Information	
Include Right Turn Reduction for Vehicular Volume?	Yes
300 feet or more to nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross?	Yes
If no, will a traffic control signal restrict the progressive movement of traffic?*	N/A
15th-percentile crossing speed of pedestrians less than 3.5 feet per second?**	No
If yes, then percent reduction to apply to crossing volume? (up to 50%)	N/A

* Include supporting documentation of no progressive movement impact.

** Not common. Include supporting documentation of low crossing speed.

Warrant 5: School Crossing	
Schoolchildren (elementary through high school) crossing the major street (3rd	Yes
Consideration given to other remedial measures (warning signs/flashers, school speed zones, school crossing guards, or a grade-separated crossing)?	Yes
300 feet or more to nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross?	Yes
If no, will a traffic control signal restrict the progressive movement of traffic?*	N/A
Minimum of 20 schoolchildren crossing during the highest crossing hour?	Yes
Engineering Study completed showing the number of adequate gaps in the traffic stream during the period when schoolchildren are using the crossing is less than the number of minutes in the same period?**	No

* Include supporting documentation of no progressive movement impact.

** May need to include supporting documentation of inadequate gaps in traffic.

Warrant 6: Coordinated Signal System	
One-way or Two-way Street?	Two-Way
Adjacent traffic control signals do not provide the necessary degree of platooning, but will collectively provide a progressive operation with the proposed traffic control signal?	No
Resultant spacing of traffic control signals 1,000 feet or more?	Yes

Warrant 7: Crash Experience	
Number of reportable crashes (*types susceptible to correction by a traffic control signal*) within a 12-month period?*	4 or less
Adequate trial of alternatives with satisfactory observance and enforcement failed to reduce crash frequency?**	Yes
Include Right Turn Reduction for Vehicular Volume?	Yes

* May need to include supporting documentation of crash details.

** May need to include supporting documentation of alternative trail(s) and results.

Warrant 8: Roadway Network	
Common intersection of two major routes?*	Yes
Projected entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday?	Yes
5-Year projected traffic volumes meet one or more of Warrants 1, 2, and 3 during an average weekday?	Yes
Total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday)?	No

* Major Route defined as:

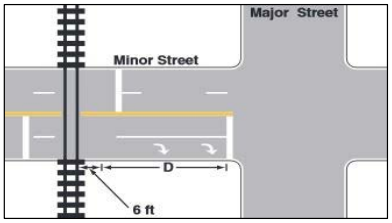
- Part of the street or highway system that serves as the principal roadway network for through traffic flow.
- Rural or suburban highways outside, entering, or traversing a city.
- Appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Warrant 9: Intersection Near a Grade Crossing	
Tracks cross which Bill Nye Avenue	Southbound
Consideration given to other alternatives/trial of alternative failed to alleviate the safety concerns?*	Yes
Distance between STOP or YIELD controlled approach and center of track nearest to the intersection within 140 feet?	Yes
Clear storage distance (Distance D) between the tracks and the intersection? (See Below)	70 feet
Number of approach lanes at the crossing?	2 or more
Rail traffic per day?	3-5
Percentage of high-occupancy buses?**	0%
Percentage of Tractor-Trailer Trucks?	7.6%-12.5%

* Alternatives to consider or try should include:

- Providing additional pavement that would enable vehicles to clear the track or provide space for an evasive maneuver.
- Reassigning the stop controls at the intersection to make the approach across the track non-stopping.

** High-occupancy is defined as a bus occupied by at least 20 people.



Multi-Way Stop Warrant Additional Information	
Traffic control signal warranted & justified with existing traffic?	Yes
Number of *correctable* crashes* in 12-month period?	4
Peak Hour high volume approach average delay (Sec.)	329.9

* Crashes include right-turn and left-turn collisions as well as right-angle collisions.

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Bill Nye Corridor Study
Project/File #	City of Laramie
Scenario	Year 2035 Total - Alts 1 & 2

Intersection Information			
Major Street (N/S Road)	3rd Street	Minor Street (E/W Road)	Bill Nye Avenue
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	2514 vehicles	Total Approach Volume	482 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	50 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

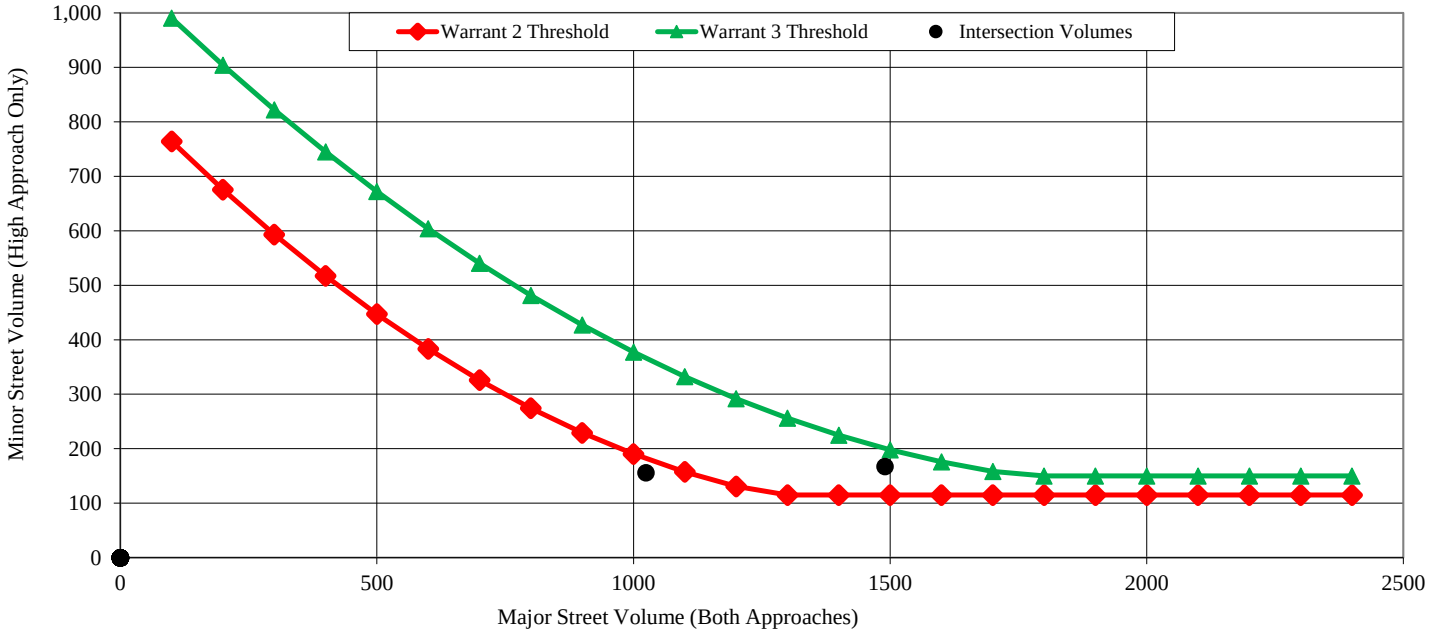
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	600	900	480 (Cond. A) & 720 (Cond. B)
Criteria - Minor Street (veh/hr)	200	100	160 (Cond. A) & 80 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Satisfied**	**Not Satisfied**
Required values reached for	2019 total, 235 minor, 21.5 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Pedestrian Crossing Volume

Traffic Signal Warrant Analysis

Project Name	**Bill Nye Corridor Study**
Project/File #	**City of Laramie**
Scenario	**Year 2035 Total - All Alts**

Intersection Information	
Major Street Name	3rd Street
North/South or East/West	N/S
Speed Limit	35 mph or less
# of Approach Lanes	2 or more
% of Right Turn Traffic to Include	100%
Minor Street Name	I-80 Ramps
# of Approach Lanes	1
% of Right Turn Traffic to Include	100%
Isolated Community < 10,000 pop	No

What Additional Warrants to Consider?	
Warrant 3, Peak Hour (A - Vol. and Delay)	Yes
Warrant 4, Pedestrian Volume	No
Warrant 5, School Crossing	No
Warrant 6, Coordinated Signal System	No
Warrant 7, Crash Experience	No
Warrant 8, Roadway Network	No
Warrant 9, Intersection Near a Grade Crossing	No
All-Way Stop Warrant	No

Sustainable Traffic Solutions, Inc.

Traffic Signal Warrant Analysis

3rd Street (Major Street) Volume

Northbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM		585	155	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM		611	164	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			1,515	0

Southbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	115	287		
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	154	553		
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			1,109	0

I-80 Ramps (Minor Street) Volume

Eastbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM				
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM				
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			0	0

Westbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM				
7 - 8 AM	45		65	
8 - 9 AM				
9 - 10 AM				
10 - 11 AM				
11 - 12 PM				
12 - 1 PM				
1 - 2 PM				
2 - 3 PM				
3 - 4 PM				
4 - 5 PM				
5 - 6 PM	55		100	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			265	0

Traffic Signal Warrant Analysis

Additional Inputs for Warrants 3 to 9 and the Multi-Way Stop Warrants

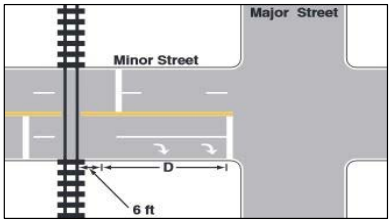
Warrant 3: Peak Hour Delay Additional Information	
T-intersection or 4-legged?	T
Peak Hour Reviewed?	PM
3rd Street (Major Street) Data	
Combined Approach Volume	1,482
I-80 Ramps (Minor Street) Data	
High Volume Side Volume	155
High Volume Side Average Delay (Sec.)	40.5
High Volume Side # of Approach Lanes	1
Low Volume Side Volume (leave blank if T)	0

Warrant 6: Coordinated Signal System	
One-way or Two-way Street?	Two-Way
Adjacent traffic control signals do not provide the necessary degree of platooning, but will collectively provide a progressive operation with the proposed traffic control signal?	No
Resultant spacing of traffic control signals 1,000 feet or more?	Yes

Warrant 9: Intersection Near a Grade Crossing	
Tracks cross which I-80 Ramps approach?	Southbound
Consideration given to other alternatives/trial of alternative failed to alleviate the safety concerns?*	Yes
Distance between STOP or YIELD controlled approach and center of track nearest to the intersection within 140 feet?	Yes
Clear storage distance (Distance D) between the tracks and the intersection? (See Below)	70 feet
Number of approach lanes at the crossing?	2 or more
Rail traffic per day?	3-5
Percentage of high-occupancy buses?**	0%
Percentage of Tractor-Trailer Trucks?	7.6%-12.5%

* Alternatives to consider or try should include:
- Providing additional pavement that would enable vehicles to clear the track or provide space for an evasive maneuver.
- Reassigning the stop controls at the intersection to make the approach across the track non-stopping.

** High-occupancy is defined as a bus occupied by at least 20 people.



Warrant 4: Pedestrian Volume Additional Information	
Include Right Turn Reduction for Vehicular Volume?	Yes
300 feet or more to nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross?	Yes
If no, will a traffic control signal restrict the progressive movement of traffic?*	N/A
15th-percentile crossing speed of pedestrians less than 3.5 feet per second?**	No
If yes, then percent reduction to apply to crossing volume? (up to 50%)	N/A

* Include supporting documentation of no progressive movement impact.

** Not common. Include supporting documentation of low crossing speed.

Warrant 7: Crash Experience	
Number of reportable crashes (*types susceptible to correction by a traffic control signal*) within a 12-month period?*	4 or less
Adequate trial of alternatives with satisfactory observance and enforcement failed to reduce crash frequency?**	Yes
Include Right Turn Reduction for Vehicular Volume?	Yes

* May need to include supporting documentation of crash details.

** May need to include supporting documentation of alternative trail(s) and results.

Warrant 5: School Crossing	
Schoolchildren (elementary through high school) crossing the major street (3rd	Yes
Consideration given to other remedial measures (warning signs/flashers, school speed zones, school crossing guards, or a grade-separated crossing)?	Yes
300 feet or more to nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross?	Yes
If no, will a traffic control signal restrict the progressive movement of traffic?*	N/A
Minimum of 20 schoolchildren crossing during the highest crossing hour?	Yes
Engineering Study completed showing the number of adequate gaps in the traffic stream during the period when schoolchildren are using the crossing is less than the number of minutes in the same period?**	No

* Include supporting documentation of no progressive movement impact.

** May need to include supporting documentation of inadequate gaps in traffic.

Warrant 8: Roadway Network	
Common intersection of two major routes?*	Yes
Projected entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday?	Yes
5-Year projected traffic volumes meet one or more of Warrants 1, 2, and 3 during an average weekday?	Yes
Total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday)?	No

* Major Route defined as:
- Part of the street or highway system that serves as the principal roadway network for through traffic flow.
- Rural or suburban highways outside, entering, or traversing a city.
- Appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Multi-Way Stop Warrant Additional Information	
Traffic control signal warranted & justified with existing traffic?	Yes
Number of *correctable* crashes* in 12-month period?	4
Peak Hour high volume approach average delay (Sec.)	40.5

* Crashes include right-turn and left-turn collisions as well as right-angle collisions.

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Bill Nye Corridor Study
Project/File #	City of Laramie
Scenario	Year 2035 Total - All Alts

Intersection Information			
Major Street (N/S Road)	3rd Street	Minor Street (E/W Road)	I-80 Ramps
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	2624 vehicles	Total Approach Volume	265 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

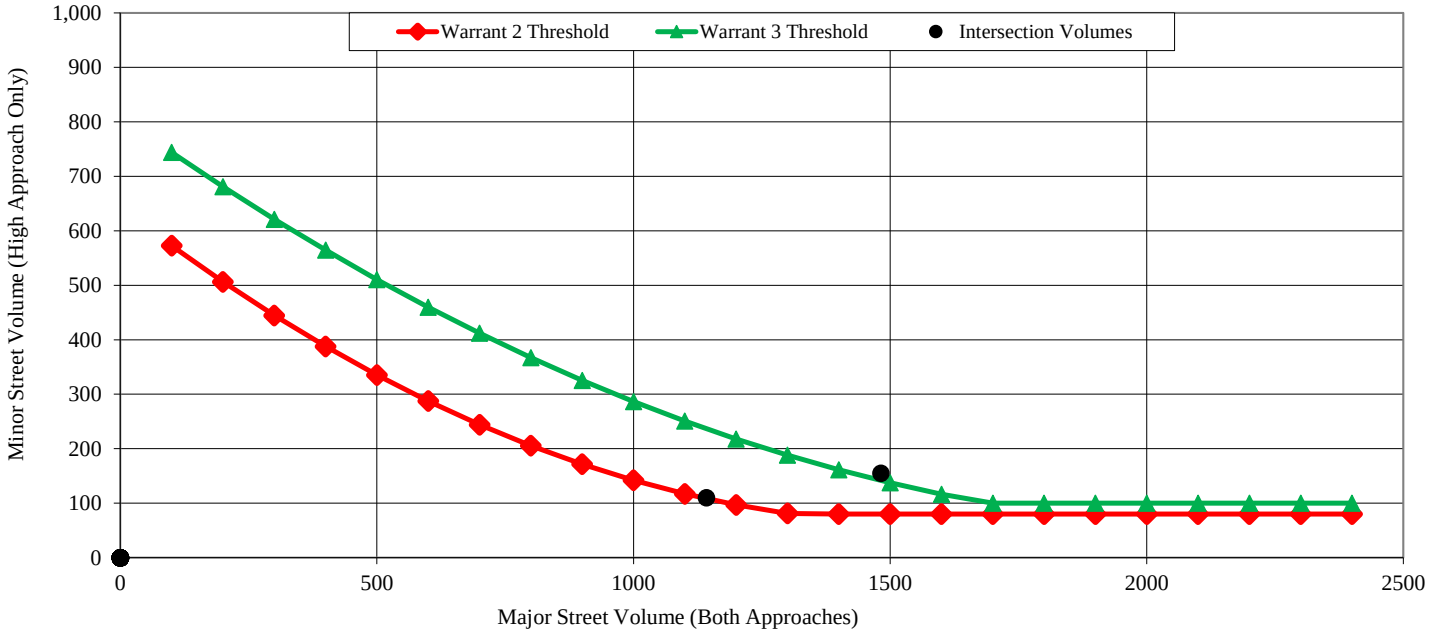
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	1 hour	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	600	900	480 (Cond. A) & 720 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Satisfied**
Required values reached for	1637 total, 155 minor, 1.7 delay	1 hour
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Pedestrian Crossing Volume

CRASH HISTORY IN LARAMIE FOR THE INTERSECTION OF S 3RD ST & RUSSELL ST FOR THE YEARS 2010 THROUGH APPROXIMATELY AUG 2015

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION
2011														
01/26/2011	746	01246	RUSSELL ST		0	0	Intersection Related	Rear End (Front to Rear)	West	Slowing	Motor Vehicle in Transport on Roadway	Daylight	Ice/Frost	Drove too Fast for Conditions
			S 3RD ST						West	Stopped in Traffic			Snow	No Improper Driving
04/05/2011	1150	05045	RUSSELL ST		0	0	Intersection	Angle (Front to Side), Opposing Direction	East	Straight Ahead	Motor Vehicle in Transport on Roadway	Daylight	Dry	Ran Red Light
			S 3RD ST						South	Straight Ahead				No Improper Driving
2012														
05/02/2012	1703	05366	S 3RD ST	400.52	0	0	Intersection Related	Rear End (Front to Rear)	South	Straight Ahead	Motor Vehicle in Transport on Roadway	Daylight	Dry	Following too Close
			RUSSELL ST						South	Turning Left				No Improper Driving
08/29/2012	1715	11263	S 3RD ST	400.52	0	0	Intersection	Rear End (Front to Rear)	South	Straight Ahead	Motor Vehicle in Transport on Roadway	Daylight	Dry	Following too Close
			RUSSELL ST						South	Stopped in Traffic				No Improper Driving
2013														
09/21/2013	1545	12017	S 3RD ST	400.52	1	0	Intersection Related	Not a Collision w/2 Vehicles in Transport	South	Turning Left	Pedacycle	Daylight	Dry	No Improper Driving
			RUSSELL ST											
2014														
02/22/2014	1608	03067	RUSSELL ST		0	0	Intersection Related	Rear End (Front to Rear)	West	Straight Ahead	Motor Vehicle in Transport on Roadway	Daylight	Ice/Frost	Drove too Fast for Conditions
			S 3RD ST						West	Stopped in Traffic				No Improper Driving
2015														
02/16/2015	1706	02279	S 3RD ST	400.52	0	0	Intersection Related	Rear End (Front to Rear)	North	Stopped in Traffic	Motor Vehicle in Transport on Roadway	Daylight	Ice/Frost	No Improper Driving
			RUSSELL ST						North	Straight Ahead			Snow	Drove too Fast for Conditions

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION

TOTAL CRASHES IN THIS REPORT 7

PDO CRASHES 6
INJURY CRASHES 1
FATAL CRASHES 0

TOTAL PERSONS INJURED 1
TOTAL PERSONS KILLED 0

	NUMBER PERSONS INJURED	NUMBER PERSONS KILLED	PDO* CRASHES	INJURY CRASHES	FATAL CRASHES	TOTAL CRASHES
2011	0	0	2	0	0	2
2012	0	0	2	0	0	2
2013	1	0	0	1	0	1
2014	0	0	1	0	0	1
2015	0	0	1	0	0	1
TOTAL	**1**	**0**	**6**	**1**	**0**	**7**

***PDO = Property Damage Only Crashes; No Injuries, No Fatalities**

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

CRASH HISTORY IN LARAMIE FOR THE INTERSECTION OF
S 3RD ST & SANDERS ST
FOR THE YEARS 2010 THROUGH APPROXIMATELY AUG 2015

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION
2010														
11/13/2010	1242	15630	S 3RD ST	400.65	0	0	Intersection	Angle Same Direction (Front to Side)	North	Turning Left	Motor Vehicle in Transport on Roadway	Daylight	Dry	Improper Turn or No Signal
			SANDERS ST						North	Straight Ahead				No Improper Driving
2011														
09/27/2011	1345	12989	S 3RD ST		1	0	Intersection Related	Angle Same Direction (Front to Side)	Northwest	Changing Lanes	Motor Vehicle in Transport on Roadway	Daylight	Dry	Improper Turn or No Signal
			SANDERS ST						North	Straight Ahead				No Improper Driving

TOTAL CRASHES IN THIS REPORT 2

PDO CRASHES 1
INJURY CRASHES 1
FATAL CRASHES 0

TOTAL PERSONS INJURED 1
TOTAL PERSONS KILLED 0

	NUMBER PERSONS INJURED	NUMBER PERSONS KILLED	PDO* CRASHES	INJURY CRASHES	FATAL CRASHES	TOTAL CRASHES
2010	0	0	1	0	0	1
2011	1	0	0	1	0	1
TOTAL	**1**	**0**	**1**	**1**	**0**	**2**

***PDO = Property Damage Only Crashes; No Injuries, No Fatalities**

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

CRASH HISTORY IN LARAMIE FOR THE INTERSECTION OF
S 3RD ST & PALMER DR/ S 4TH ST
FOR THE YEARS 2010 THROUGH APPROXIMATELY AUG 2015

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION

TOTAL CRASHES IN THIS REPORT 0

PDO CRASHES 0
INJURY CRASHES 0
FATAL CRASHES 0

TOTAL PERSONS INJURED 0
TOTAL PERSONS KILLED 0

	NUMBER PERSONS INJURED	NUMBER PERSONS KILLED	PDO* CRASHES	INJURY CRASHES	FATAL CRASHES	TOTAL CRASHES
	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

***PDO = Property Damage Only Crashes; No Injuries, No Fatalities**

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

CRASH HISTORY IN LARAMIE FOR THE INTERSECTION OF
S 3RD ST & ~~PALMER DR~~ Boswell Drive
FOR THE YEARS 2010 THROUGH APPROXIMATELY AUG 2015

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION
2011														
08/03/2011	1324	10298	S 3RD ST	400.82	2	0	Intersection	Angle Right (Front to Side, includes Broadside	South	Turning Left	Motor Vehicle in Transport on Roadway	Daylight	Dry	Failed to Yield ROW
			BOSWELL DR						North	Straight Ahead				No Improper Driving
									West	Stopped in Traffic				No Improper Driving
2014														
09/19/2014	1724	12513	S 3RD ST	400.82	0	0	Intersection Related	Sideswipe Same Direction (Passing)	South	Straight Ahead	Motor Vehicle in Transport on Roadway	Daylight	Dry	Failed to Yield ROW
			BOSWELL DR						South	Straight Ahead				No Improper Driving
2015														
05/24/2015	1434	05911	BOSWELL DR		0	0	Intersection Related	Rear End (Front to Rear)	West	Stopped in Traffic	Motor Vehicle in Transport on Roadway	Daylight	Dry	No Improper Driving
			S 3RD ST						West	Straight Ahead				Following too Close

TOTAL CRASHES IN THIS REPORT	3
PDO CRASHES	2
INJURY CRASHES	1
FATAL CRASHES	0
TOTAL PERSONS INJURED	2
TOTAL PERSONS KILLED	0

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION

	NUMBER PERSONS INJURED	NUMBER PERSONS KILLED	PDO* CRASHES	INJURY CRASHES	FATAL CRASHES	TOTAL CRASHES
2011	2	0	0	1	0	1
2014	0	0	1	0	0	1
2015	0	0	1	0	0	1
TOTAL	**2**	**0**	**2**	**1**	**0**	**3**

***PDO = Property Damage Only Crashes; No Injuries, No Fatalities**

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

CRASH HISTORY IN LARAMIE FOR THE INTERSECTION OF S 3RD ST & I 80 EXIT 313 WB OFF/ON RAMPS FOR THE YEARS 2010 THROUGH APPROXIMATELY AUG 2015

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION
2010														
08/06/2010	1829	10333	I 80 RAMP		0	0	Interchange Area Intersection	Rear End (Front to Rear)	West	Stopped in Traffic	Motor Vehicle in Transport on Roadway	Daylight	Dry	No Improper Driving
			S 3RD ST						West	Straight Ahead				Failed to Yield ROW
2012														
10/14/2012	857	13640	S 3RD ST	401.01	0	0	Intersection	Angle (Front to Side), Opposing Direction	East	Turning Left	Motor Vehicle in Transport on Roadway	Daylight	Dry	Failed to Yield ROW
			I 80 RAMP						North	Straight Ahead				No Improper Driving
2014														
06/16/2014	1100	08801	I 80 RAMP EXIT 313 WB OFF		0	0	Interchange Area Intersection	Rear End (Front to Rear)	West	Slowing	Motor Vehicle in Transport on Roadway	Daylight	Dry	No Improper Driving
			S 3RD ST						West	Stopped in Traffic				Disregarded Other Road Mar
10/24/2014	1550	14016	S 3RD ST	401.01	0	0	Intersection	Angle Right (Front to Side, includes Broadside	West	Turning Left	Motor Vehicle in Transport on Roadway	Daylight	Dry	Failed to Yield ROW
			I 80 RAMP EXIT 313 WB OFF						South	Turning Left				No Improper Driving
12/05/2014	1710	16352	S 3RD ST	401.01	0	0	Intersection	Angle Same Direction (Front to Side)	South	Turning Left	Motor Vehicle in Transport on Roadway	Dusk	Dry	Improper Turn or No Signal
			I 80 RAMP EXIT 313 WB ON						South	Straight Ahead				Erratic/Reckless/Careless/Ag
														No Improper Driving
2015														
02/20/2015	1505	02916	I 80 RAMP EXIT 313 WB OFF		0	0	Interchange Area Intersection	Rear End (Front to Rear)	West	Slowing	Motor Vehicle in Transport on Roadway	Daylight	Wet	Following too Close
			S 3RD ST						West	Stopped in Traffic				No Improper Driving

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov

DATE	TIME	REPORT NUMBER	CRASH LOCATION	MILEPOST	NUM INJ	NUM KIL	JUNCTION RELATION	MANNER_OF COLLISION	DIRECTION	ACTIVITY PRIOR	FIRST HARMFUL EVENT	LIGHT COND	ROAD COND	DRIVER ACTION

TOTAL CRASHES IN THIS REPORT 6

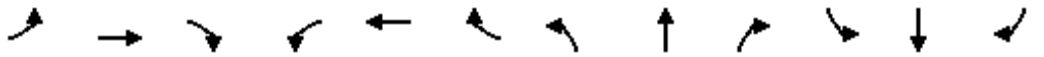
PDO CRASHES 6
INJURY CRASHES 0
FATAL CRASHES 0

TOTAL PERSONS INJURED 0
TOTAL PERSONS KILLED 0

	NUMBER PERSONS INJURED	NUMBER PERSONS KILLED	PDO* CRASHES	INJURY CRASHES	FATAL CRASHES	TOTAL CRASHES
2010	0	0	1	0	0	1
2012	0	0	1	0	0	1
2014	0	0	3	0	0	3
2015	0	0	1	0	0	1
TOTAL	**0**	**0**	**6**	**0**	**0**	**6**

***PDO = Property Damage Only Crashes; No Injuries, No Fatalities**

CREATED BY: Lorraine Lucero; WYDOT Highway Safety; (307) 777-4270; lorraine.lucero@wyo.gov



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	5	5	195	10	145	5	480	190	95	205	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	12	6	6	229	12	171	6	565	224	112	241	6
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	147	147	379	18	257	55	1382	542	357	1023	27
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.22	0.22	0.22	0.68	0.68	0.68
Sat Flow, veh/h	1196	721	721	1397	88	1258	5	2045	803	393	1513	40
Grp Volume(v), veh/h	12	0	12	229	0	183	436	0	359	144	0	215
Grp Sat Flow(s),veh/h/ln	1196	0	1441	1397	0	1347	1567	0	1286	525	0	1420
Q Serve(g_s), s	0.7	0.0	0.5	11.0	0.0	8.8	0.0	0.0	16.7	7.5	0.0	4.0
Cycle Q Clear(g_c), s	9.4	0.0	0.5	11.5	0.0	8.8	16.7	0.0	16.7	24.2	0.0	4.0
Prop In Lane	1.00		0.50	1.00		0.93	0.01		0.62	0.78		0.03
Lane Grp Cap(c), veh/h	197	0	294	379	0	275	1111	0	869	446	0	960
V/C Ratio(X)	0.06	0.00	0.04	0.60	0.00	0.67	0.39	0.00	0.41	0.32	0.00	0.22
Avail Cap(c_a), veh/h	257	0	367	449	0	342	1111	0	869	446	0	960
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	22.4	27.0	0.0	25.7	15.3	0.0	15.3	11.4	0.0	4.3
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.7	0.0	3.4	1.0	0.0	1.4	1.9	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	4.4	0.0	3.5	7.6	0.0	6.3	2.1	0.0	1.7
LnGrp Delay(d),s/veh	30.1	0.0	22.4	28.6	0.0	29.1	16.3	0.0	16.8	13.3	0.0	4.9
LnGrp LOS	C		C	C		C	B		B	B		A
Approach Vol, veh/h		24			412			795			359	
Approach Delay, s/veh		26.3			28.8			16.5			8.3	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.5		18.5		51.5		18.5
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		18.7		11.4		26.2		13.5
Green Ext Time (p_c), s		9.0		1.1		7.7		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	1	10	0	20	5	655	10	10	390	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	12	0	24	6	771	12	12	459	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	882	1279	232	1041	1276	391	465	0	0	782	0	0
Stage 1	485	485	-	788	788	-	-	-	-	-	-	-
Stage 2	397	794	-	253	488	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	241	165	770	184	165	608	1093	-	-	832	-	-
Stage 1	532	550	-	350	400	-	-	-	-	-	-	-
Stage 2	600	398	-	729	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	227	160	770	180	160	608	1093	-	-	832	-	-
Mov Cap-2 Maneuver	227	160	-	180	160	-	-	-	-	-	-	-
Stage 1	527	540	-	347	396	-	-	-	-	-	-	-
Stage 2	571	394	-	714	538	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	16.3	0.1	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1093	-	-	227	770	180	608	832	-	-
HCM Lane V/C Ratio	0.005	-	-	0.005	0.002	0.065	0.039	0.014	-	-
HCM Control Delay (s)	8.3	0	-	20.9	9.7	26.4	11.2	9.4	0.1	-
HCM Lane LOS	A	A	-	C	A	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	0	-	-

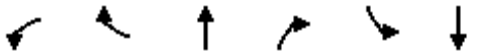
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	2	1	50	1	55	5	610	20	30	365	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	2	1	59	1	65	6	718	24	35	429	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	874	1256	218	1027	1247	371	435	0	0	741	0	0
Stage 1	503	503	-	741	741	-	-	-	-	-	-	-
Stage 2	371	753	-	286	506	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	244	170	786	189	172	626	1121	-	-	862	-	-
Stage 1	519	540	-	374	421	-	-	-	-	-	-	-
Stage 2	622	416	-	697	538	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	210	162	786	180	164	626	1121	-	-	862	-	-
Mov Cap-2 Maneuver	210	162	-	180	164	-	-	-	-	-	-	-
Stage 1	516	518	-	372	419	-	-	-	-	-	-	-
Stage 2	553	414	-	665	516	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22	22.5	0.1	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1121	-	-	210	220	180	596	862	-	-
HCM Lane V/C Ratio	0.005	-	-	0.017	0.016	0.327	0.111	0.041	-	-
HCM Control Delay (s)	8.2	-	-	22.4	21.6	34.4	11.8	9.4	-	-
HCM Lane LOS	A	-	-	C	C	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	1.3	0.4	0.1	-	-



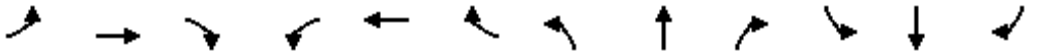
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	65	570	155	115	300
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1569	1569	1569	1569
Adj Flow Rate, veh/h	53	76	671	0	135	353
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	2383	1066	669	2383
Arrive On Green	0.08	0.08	0.80	0.00	1.00	1.00
Sat Flow, veh/h	1494	1333	3059	1333	763	3059
Grp Volume(v), veh/h	53	76	671	0	135	353
Grp Sat Flow(s),veh/h/ln	1494	1333	1490	1333	763	1490
Q Serve(g_s), s	2.4	3.9	4.1	0.0	1.2	0.0
Cycle Q Clear(g_c), s	2.4	3.9	4.1	0.0	5.2	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	120	107	2383	1066	669	2383
V/C Ratio(X)	0.44	0.71	0.28	0.00	0.20	0.15
Avail Cap(c_a), veh/h	359	320	2383	1066	669	2383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	31.4	1.8	0.0	0.2	0.0
Incr Delay (d2), s/veh	2.5	8.3	0.3	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.7	1.7	0.0	0.4	0.0
LnGrp Delay(d),s/veh	33.2	39.7	2.1	0.0	0.9	0.1
LnGrp LOS	C	D	A		A	A
Approach Vol, veh/h	129		671			488
Approach Delay, s/veh	37.0		2.1			0.3
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		60.2				60.2		9.8
Change Period (Y+Rc), s		* 4.2				* 4.2		4.2
Max Green Setting (Gmax), s		* 45				* 45		16.8
Max Q Clear Time (g_c+I1), s		6.1				7.2		5.9
Green Ext Time (p_c), s		10.2				10.1		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.9
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	35	10	235	10	205	10	465	260	270	555	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	12	41	12	276	12	241	12	547	306	318	653	12
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	297	87	409	16	325	60	1128	622	478	926	17
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	1.00	1.00	1.00	0.63	0.63	0.63
Sat Flow, veh/h	1122	1167	342	1346	64	1279	12	1803	993	609	1480	27
Grp Volume(v), veh/h	12	0	53	276	0	253	479	0	386	362	0	621
Grp Sat Flow(s),veh/h/ln	1122	0	1508	1346	0	1343	1556	0	1252	694	0	1423
Q Serve(g_s), s	0.7	0.0	1.9	14.0	0.0	12.1	0.0	0.0	0.0	28.6	0.0	20.3
Cycle Q Clear(g_c), s	12.8	0.0	1.9	15.9	0.0	12.1	0.0	0.0	0.0	28.6	0.0	20.3
Prop In Lane	1.00		0.23	1.00		0.95	0.03		0.79	0.88		0.02
Lane Grp Cap(c), veh/h	194	0	384	409	0	341	1026	0	783	531	0	890
V/C Ratio(X)	0.06	0.00	0.14	0.68	0.00	0.74	0.47	0.00	0.49	0.68	0.00	0.70
Avail Cap(c_a), veh/h	194	0	384	409	0	341	1026	0	783	531	0	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	0.0	20.2	26.3	0.0	24.0	0.0	0.0	0.0	10.3	0.0	8.7
Incr Delay (d2), s/veh	0.1	0.0	0.2	4.4	0.0	8.4	1.5	0.0	2.2	6.9	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.8	5.6	0.0	5.3	0.4	0.0	0.5	6.4	0.0	8.9
LnGrp Delay(d),s/veh	30.0	0.0	20.3	30.7	0.0	32.3	1.5	0.0	2.2	17.2	0.0	13.2
LnGrp LOS	C		C	C		C	A		A	B		B
Approach Vol, veh/h		65			529			865			983	
Approach Delay, s/veh		22.1			31.5			1.8			14.7	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		48.0		22.0		48.0		22.0
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		2.0		14.8		30.6		17.9
Green Ext Time (p_c), s		22.6		0.9		10.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	10	0	30	10	700	10	50	740	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	6	12	0	35	12	824	12	59	871	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1429	1853	441	1406	1853	418	882	0	0	835	0	0
Stage 1	994	994	-	853	853	-	-	-	-	-	-	-
Stage 2	435	859	-	553	1000	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	95	73	564	99	73	584	762	-	-	794	-	-
Stage 1	263	321	-	320	374	-	-	-	-	-	-	-
Stage 2	570	371	-	485	319	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	78	61	564	85	61	584	762	-	-	794	-	-
Mov Cap-2 Maneuver	78	61	-	85	61	-	-	-	-	-	-	-
Stage 1	255	274	-	311	363	-	-	-	-	-	-	-
Stage 2	520	360	-	410	272	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	33.2	22.2	0.2	1.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	762	-	-	78	564	85	584	794	-	-
HCM Lane V/C Ratio	0.015	-	-	0.075	0.01	0.138	0.06	0.074	-	-
HCM Control Delay (s)	9.8	0.1	-	54.9	11.5	54	11.6	9.9	0.6	-
HCM Lane LOS	A	A	-	F	B	F	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.5	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	5	10	45	5	65	5	640	65	85	660	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	6	12	53	6	76	6	753	76	100	776	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1373	1823	394	1394	1791	415	788	0	0	829	0	0
Stage 1	982	982	-	803	803	-	-	-	-	-	-	-
Stage 2	391	841	-	591	988	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	105	76	605	101	80	586	827	-	-	798	-	-
Stage 1	267	325	-	343	394	-	-	-	-	-	-	-
Stage 2	605	379	-	460	323	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	77	66	605	83	69	586	827	-	-	798	-	-
Mov Cap-2 Maneuver	77	66	-	83	69	-	-	-	-	-	-	-
Stage 1	265	284	-	341	391	-	-	-	-	-	-	-
Stage 2	514	376	-	386	283	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.5	51.5	0.1	1.1
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	827	-	-	77	163	83	382	798	-	-
HCM Lane V/C Ratio	0.007	-	-	0.229	0.108	0.638	0.216	0.125	-	-
HCM Control Delay (s)	9.4	-	-	65.1	29.8	105.1	17	10.2	-	-
HCM Lane LOS	A	-	-	F	D	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.4	3	0.8	0.4	-	-

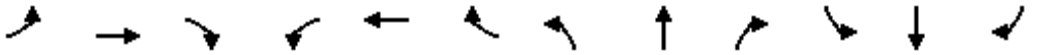
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	55	100	610	165	155	560
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1569	1569	1569	1569
Adj Flow Rate, veh/h	65	118	718	0	182	659
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	173	154	2278	1019	607	2278
Arrive On Green	0.12	0.12	0.76	0.00	1.00	1.00
Sat Flow, veh/h	1494	1333	3059	1333	731	3059
Grp Volume(v), veh/h	65	118	718	0	182	659
Grp Sat Flow(s),veh/h/ln	1494	1333	1490	1333	731	1490
Q Serve(g_s), s	2.8	6.0	5.2	0.0	2.5	0.0
Cycle Q Clear(g_c), s	2.8	6.0	5.2	0.0	7.8	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	173	154	2278	1019	607	2278
V/C Ratio(X)	0.38	0.77	0.32	0.00	0.30	0.29
Avail Cap(c_a), veh/h	341	305	2278	1019	607	2278
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	30.0	2.6	0.0	0.4	0.0
Incr Delay (d2), s/veh	1.4	7.7	0.4	0.0	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.5	2.2	0.0	0.6	0.1
LnGrp Delay(d),s/veh	30.0	37.7	2.9	0.0	1.6	0.3
LnGrp LOS	C	D	A		A	A
Approach Vol, veh/h	183		718			841
Approach Delay, s/veh	35.0		2.9			0.6
Approach LOS	C		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		57.7				57.7		12.3
Change Period (Y+Rc), s		* 4.2				* 4.2		4.2
Max Green Setting (Gmax), s		* 46				* 46		16.0
Max Q Clear Time (g_c+I1), s		7.2				9.8		8.0
Green Ext Time (p_c), s		15.4				15.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	5.2
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	4	1	127	9	60	2	311	127	38	177	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	7	5	1	149	11	71	2	366	149	45	208	4
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	180	36	297	26	167	53	1506	600	362	1646	33
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.74	0.74	0.74	0.74	0.74	0.74
Sat Flow, veh/h	1311	1270	254	1404	183	1178	1	2039	812	396	2228	44
Grp Volume(v), veh/h	7	0	6	149	0	82	281	0	236	129	0	128
Grp Sat Flow(s),veh/h/ln	1311	0	1524	1404	0	1361	1568	0	1284	1249	0	1420
Q Serve(g_s), s	0.3	0.0	0.2	7.2	0.0	3.9	0.0	0.0	4.1	0.0	0.0	1.8
Cycle Q Clear(g_c), s	4.2	0.0	0.2	7.4	0.0	3.9	4.0	0.0	4.1	4.2	0.0	1.8
Prop In Lane	1.00		0.17	1.00		0.87	0.01		0.63	0.35		0.03
Lane Grp Cap(c), veh/h	216	0	215	297	0	192	1210	0	948	992	0	1049
V/C Ratio(X)	0.03	0.00	0.03	0.50	0.00	0.43	0.23	0.00	0.25	0.13	0.00	0.12
Avail Cap(c_a), veh/h	364	0	387	455	0	346	1210	0	948	992	0	1049
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	25.9	29.1	0.0	27.5	2.9	0.0	2.9	2.6	0.0	2.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	1.5	0.5	0.0	0.6	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	2.9	0.0	1.5	1.9	0.0	1.6	0.8	0.0	0.8
LnGrp Delay(d),s/veh	29.4	0.0	26.0	30.4	0.0	29.0	3.4	0.0	3.6	2.9	0.0	2.9
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		13			231			517			257	
Approach Delay, s/veh		27.8			29.9			3.5			2.9	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		55.9		14.1		55.9		14.1
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		6.1		6.2		6.2		9.4
Green Ext Time (p_c), s		5.6		0.7		5.6		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	1	5	0	2	2	317	5	4	258	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	6	0	2	2	373	6	5	304	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	504	697	152	542	694	189	304	0	0	379	0	0
Stage 1	313	313	-	381	381	-	-	-	-	-	-	-
Stage 2	191	384	-	161	313	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	451	363	867	423	365	821	1254	-	-	1176	-	-
Stage 1	672	656	-	613	612	-	-	-	-	-	-	-
Stage 2	792	610	-	825	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	447	360	867	420	362	821	1254	-	-	1176	-	-
Mov Cap-2 Maneuver	447	360	-	420	362	-	-	-	-	-	-	-
Stage 1	671	653	-	612	611	-	-	-	-	-	-	-
Stage 2	788	609	-	820	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	12.5	0	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1254	-	-	590	488	1176	-	-
HCM Lane V/C Ratio	0.002	-	-	0.004	0.017	0.004	-	-
HCM Control Delay (s)	7.9	0	-	11.1	12.5	8.1	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	55	26	411	33	10	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	170	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	31	484	39	12	272

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	662	261	0	0	522	0
Stage 1	503	-	-	-	-	-
Stage 2	159	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	395	738	-	-	1041	-
Stage 1	573	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	390	738	-	-	1041	-
Mov Cap-2 Maneuver	390	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	390	738	1041	-
HCM Lane V/C Ratio	-	-	0.166	0.041	0.011	-
HCM Control Delay (s)	-	-	16.1	10.1	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	0	-

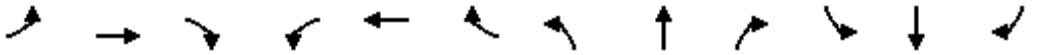
Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	37	45	404	127	86	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	200	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	53	475	149	101	253

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	804	238	0	-	475	0
Stage 1	475	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	321	763	-	0	1083	-
Stage 1	592	-	-	0	-	-
Stage 2	701	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	291	763	-	-	1083	-
Mov Cap-2 Maneuver	291	-	-	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	636	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	441	1083	-
HCM Lane V/C Ratio	-	0.219	0.093	-
HCM Control Delay (s)	-	15.4	8.7	-
HCM Lane LOS	-	C	A	-
HCM 95th %tile Q(veh)	-	0.8	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	29	8	146	8	82	4	367	155	109	364	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	8	34	9	172	9	96	5	432	182	128	428	7
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	220	58	320	21	227	55	1400	579	402	1337	23
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.70	0.70	0.70	0.70	0.70	0.70
Sat Flow, veh/h	1284	1196	317	1358	116	1235	4	2011	831	467	1920	32
Grp Volume(v), veh/h	8	0	43	172	0	105	339	0	280	256	0	307
Grp Sat Flow(s),veh/h/ln	1284	0	1513	1358	0	1351	1566	0	1281	998	0	1422
Q Serve(g_s), s	0.4	0.0	1.7	8.5	0.0	4.8	0.0	0.0	6.0	4.7	0.0	5.9
Cycle Q Clear(g_c), s	5.2	0.0	1.7	10.2	0.0	4.8	5.9	0.0	6.0	10.7	0.0	5.9
Prop In Lane	1.00		0.21	1.00		0.91	0.01		0.65	0.50		0.02
Lane Grp Cap(c), veh/h	251	0	278	320	0	248	1142	0	892	772	0	990
V/C Ratio(X)	0.03	0.00	0.15	0.54	0.00	0.42	0.30	0.00	0.31	0.33	0.00	0.31
Avail Cap(c_a), veh/h	341	0	385	416	0	343	1142	0	892	772	0	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	24.0	28.3	0.0	25.3	4.1	0.0	4.1	4.9	0.0	4.1
Incr Delay (d2), s/veh	0.1	0.0	0.3	1.4	0.0	1.1	0.7	0.0	0.9	1.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.7	3.3	0.0	1.9	2.7	0.0	2.3	2.5	0.0	2.4
LnGrp Delay(d),s/veh	27.6	0.0	24.3	29.7	0.0	26.4	4.8	0.0	5.1	6.1	0.0	4.9
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		51			277			619			563	
Approach Delay, s/veh		24.8			28.4			4.9			5.5	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		52.9		17.1		52.9		17.1
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		8.0		7.2		12.7		12.2
Green Ext Time (p_c), s		10.0		1.0		9.6		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	6	8	0	2	0	372	7	0	466	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	7	9	0	2	0	438	8	0	548	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	769	996	276	716	994	223	552	0	0	446	0	0
Stage 1	550	550	-	442	442	-	-	-	-	-	-	-
Stage 2	219	446	-	274	552	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	291	243	721	317	244	780	1014	-	-	1111	-	-
Stage 1	487	514	-	564	575	-	-	-	-	-	-	-
Stage 2	763	572	-	709	513	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	290	243	721	314	244	780	1014	-	-	1111	-	-
Mov Cap-2 Maneuver	290	243	-	314	244	-	-	-	-	-	-	-
Stage 1	487	514	-	564	575	-	-	-	-	-	-	-
Stage 2	761	572	-	702	513	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	15.4	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1014	-	-	595	357	1111	-	-
HCM Lane V/C Ratio	-	-	-	0.014	0.033	-	-	-
HCM Control Delay (s)	0	-	-	11.1	15.4	0	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	45	27	410	66	54	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	170	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	32	482	78	64	434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	865	280	0	0	560	0
Stage 1	521	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	293	717	-	-	1007	-
Stage 1	561	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	274	717	-	-	1007	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	274	717	1007	-
HCM Lane V/C Ratio	-	-	0.193	0.044	0.063	-
HCM Control Delay (s)	-	-	21.3	10.3	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	0.2	-

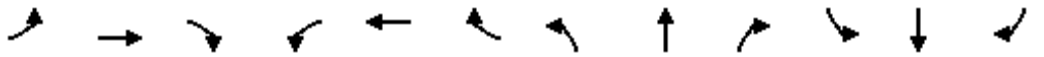
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	45	65	397	134	116	316
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	200	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	76	467	158	136	372

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	926	234	0	-	467	0
Stage 1	467	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	268	768	-	0	1091	-
Stage 1	597	-	-	0	-	-
Stage 2	603	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	235	768	-	-	1091	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	2.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	398	1091	-
HCM Lane V/C Ratio	-	0.325	0.125	-
HCM Control Delay (s)	-	18.3	8.8	-
HCM Lane LOS	-	C	A	-
HCM 95th %tile Q(veh)	-	1.4	0.4	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	5	5	145	10	90	5	535	160	55	245	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	11	5	5	158	11	98	5	582	174	60	266	5
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	113	113	313	21	190	55	1606	476	346	1521	30
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.96	0.96	0.96	0.72	0.72	0.72
Sat Flow, veh/h	1279	721	721	1399	137	1217	4	2218	657	380	2102	41
Grp Volume(v), veh/h	11	0	10	158	0	109	414	0	347	158	0	173
Grp Sat Flow(s),veh/h/ln	1279	0	1441	1399	0	1354	1567	0	1312	1103	0	1420
Q Serve(g_s), s	0.6	0.0	0.4	7.6	0.0	5.2	0.0	0.0	1.1	0.0	0.0	2.7
Cycle Q Clear(g_c), s	5.7	0.0	0.4	8.0	0.0	5.2	1.1	0.0	1.1	2.2	0.0	2.7
Prop In Lane	1.00		0.50	1.00		0.90	0.01		0.50	0.38		0.03
Lane Grp Cap(c), veh/h	208	0	225	313	0	211	1186	0	949	869	0	1028
V/C Ratio(X)	0.05	0.00	0.04	0.50	0.00	0.52	0.35	0.00	0.37	0.18	0.00	0.17
Avail Cap(c_a), veh/h	443	0	490	570	0	460	1186	0	949	869	0	1028
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	25.1	28.5	0.0	27.1	0.4	0.0	0.4	3.0	0.0	3.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	1.9	0.8	0.0	1.1	0.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	3.0	0.0	2.1	0.7	0.0	0.6	1.0	0.0	1.1
LnGrp Delay(d),s/veh	29.8	0.0	25.2	29.7	0.0	29.0	1.2	0.0	1.5	3.4	0.0	3.4
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		21			267			761			331	
Approach Delay, s/veh		27.6			29.5			1.3			3.4	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		54.9		15.1		54.9		15.1
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 38		* 24		* 38		* 24
Max Q Clear Time (g_c+I1), s		3.1		7.7		4.7		10.0
Green Ext Time (p_c), s		8.8		1.0		8.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	1	10	0	20	5	680	5	10	380	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	11	0	22	5	739	5	11	413	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	818	1193	209	981	1193	372	418	0	0	745	0	0
Stage 1	438	438	-	753	753	-	-	-	-	-	-	-
Stage 2	380	755	-	228	440	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	268	186	797	204	186	625	1138	-	-	859	-	-
Stage 1	567	577	-	368	416	-	-	-	-	-	-	-
Stage 2	614	415	-	754	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	181	797	200	181	625	1138	-	-	859	-	-
Mov Cap-2 Maneuver	254	181	-	200	181	-	-	-	-	-	-	-
Stage 1	562	567	-	365	413	-	-	-	-	-	-	-
Stage 2	588	412	-	740	566	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	15.3	0.1	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	254	797	200	625	859	-	-
HCM Lane V/C Ratio	0.005	-	-	0.004	0.001	0.054	0.035	0.013	-	-
HCM Control Delay (s)	8.2	0	-	19.2	9.5	24	11	9.2	0.1	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	2	1	100	1	110	5	575	55	70	314	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1569	1569	1600	1569	1569	1600
Adj Flow Rate, veh/h	3	2	1	109	1	120	5	625	60	76	341	5
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	127	64	282	1	171	786	2065	198	669	2259	33
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	0.25	0.25	0.25
Sat Flow, veh/h	1265	988	494	1408	11	1324	1031	2749	264	754	3007	44
Grp Volume(v), veh/h	3	0	3	109	0	121	5	338	347	76	169	177
Grp Sat Flow(s),veh/h/ln	1265	0	1481	1408	0	1335	1031	1490	1522	754	1490	1561
Q Serve(g_s), s	0.2	0.0	0.1	5.1	0.0	6.1	0.0	0.0	0.0	5.5	6.2	6.2
Cycle Q Clear(g_c), s	6.2	0.0	0.1	5.3	0.0	6.1	6.2	0.0	0.0	5.5	6.2	6.2
Prop In Lane	1.00		0.33	1.00		0.99	1.00		0.17	1.00		0.03
Lane Grp Cap(c), veh/h	156	0	191	282	0	172	786	1119	1143	669	1119	1173
V/C Ratio(X)	0.02	0.00	0.02	0.39	0.00	0.70	0.01	0.30	0.30	0.11	0.15	0.15
Avail Cap(c_a), veh/h	405	0	483	559	0	435	786	1119	1143	669	1119	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	26.6	28.9	0.0	29.2	0.4	0.0	0.0	8.6	8.9	8.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	5.2	0.0	0.7	0.7	0.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	2.1	0.0	2.5	0.0	0.2	0.2	1.2	2.7	2.8
LnGrp Delay(d),s/veh	32.2	0.0	26.7	29.8	0.0	34.4	0.4	0.7	0.7	9.0	9.2	9.2
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		6			230			690			422	
Approach Delay, s/veh		29.5			32.2			0.7			9.1	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.8		13.2		56.8		13.2
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 39		* 23		* 39		* 23
Max Q Clear Time (g_c+I1), s		8.2		8.2		8.2		8.1
Green Ext Time (p_c), s		8.1		0.9		8.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

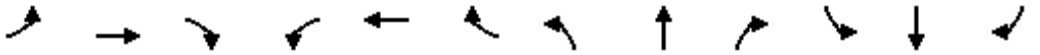
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	65	570	155	115	300
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1569	1569	1569	1569
Adj Flow Rate, veh/h	49	71	620	0	125	326
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	113	101	2397	1072	705	2397
Arrive On Green	0.08	0.08	0.80	0.00	1.00	1.00
Sat Flow, veh/h	1494	1333	3059	1333	800	3059
Grp Volume(v), veh/h	49	71	620	0	125	326
Grp Sat Flow(s),veh/h/ln	1494	1333	1490	1333	800	1490
Q Serve(g_s), s	2.2	3.6	3.6	0.0	0.9	0.0
Cycle Q Clear(g_c), s	2.2	3.6	3.6	0.0	4.5	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	113	101	2397	1072	705	2397
V/C Ratio(X)	0.43	0.70	0.26	0.00	0.18	0.14
Avail Cap(c_a), veh/h	401	358	2397	1072	705	2397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.98	0.98
Uniform Delay (d), s/veh	30.9	31.6	1.7	0.0	0.1	0.0
Incr Delay (d2), s/veh	2.6	8.5	0.3	0.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.6	1.6	0.0	0.3	0.0
LnGrp Delay(d),s/veh	33.5	40.1	2.0	0.0	0.7	0.1
LnGrp LOS	C	D	A		A	A
Approach Vol, veh/h	120		620			451
Approach Delay, s/veh	37.4		2.0			0.3
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		60.5				60.5		9.5
Change Period (Y+Rc), s		* 4.2				* 4.2		4.2
Max Green Setting (Gmax), s		* 43				* 43		18.8
Max Q Clear Time (g_c+I1), s		5.6				6.5		5.6
Green Ext Time (p_c), s		9.0				9.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.9
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	35	10	185	10	135	10	535	195	185	640	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	11	38	11	201	11	147	11	582	212	201	696	11
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	244	71	349	20	262	60	1403	504	397	1255	20
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	1.00	1.00	1.00	0.67	0.67	0.67
Sat Flow, veh/h	1223	1170	339	1351	94	1254	11	2089	750	474	1869	30
Grp Volume(v), veh/h	11	0	49	201	0	158	439	0	366	378	0	530
Grp Sat Flow(s),veh/h/ln	1223	0	1509	1351	0	1347	1556	0	1295	950	0	1422
Q Serve(g_s), s	0.6	0.0	1.9	10.0	0.0	7.4	0.0	0.0	0.0	12.0	0.0	13.7
Cycle Q Clear(g_c), s	7.9	0.0	1.9	11.9	0.0	7.4	0.0	0.0	0.0	13.8	0.0	13.7
Prop In Lane	1.00		0.22	1.00		0.93	0.03		0.58	0.53		0.02
Lane Grp Cap(c), veh/h	229	0	315	349	0	281	1097	0	869	717	0	955
V/C Ratio(X)	0.05	0.00	0.16	0.58	0.00	0.56	0.40	0.00	0.42	0.53	0.00	0.56
Avail Cap(c_a), veh/h	285	0	384	410	0	343	1097	0	869	717	0	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	22.7	27.5	0.0	24.8	0.0	0.0	0.0	5.8	0.0	6.0
Incr Delay (d2), s/veh	0.1	0.0	0.2	1.5	0.0	1.8	1.1	0.0	1.5	2.8	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.8	3.9	0.0	2.9	0.3	0.0	0.4	4.3	0.0	5.9
LnGrp Delay(d),s/veh	28.5	0.0	22.9	29.0	0.0	26.6	1.1	0.0	1.5	8.6	0.0	8.4
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		60			359			805			908	
Approach Delay, s/veh		23.9			27.9			1.3			8.4	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.2		18.8		51.2		18.8
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		2.0		9.9		15.8		13.9
Green Ext Time (p_c), s		18.7		1.2		15.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	10	0	30	10	705	10	50	775	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	5	11	0	33	11	766	11	54	842	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1362	1756	427	1323	1755	389	853	0	0	777	0	0
Stage 1	957	957	-	793	793	-	-	-	-	-	-	-
Stage 2	405	799	-	530	962	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	107	84	576	114	84	610	782	-	-	835	-	-
Stage 1	277	334	-	348	398	-	-	-	-	-	-	-
Stage 2	593	396	-	500	332	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	90	72	576	100	72	610	782	-	-	835	-	-
Mov Cap-2 Maneuver	90	72	-	100	72	-	-	-	-	-	-	-
Stage 1	270	293	-	339	388	-	-	-	-	-	-	-
Stage 2	547	386	-	434	291	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.5	19.7	0.2	1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	782	-	-	90	576	100	610	835	-	-
HCM Lane V/C Ratio	0.014	-	-	0.06	0.009	0.109	0.053	0.065	-	-
HCM Control Delay (s)	9.7	0.1	-	47.6	11.3	45.3	11.2	9.6	0.5	-
HCM Lane LOS	A	A	-	E	B	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.4	0.2	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	5	10	95	5	135	5	575	130	170	600	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1569	1569	1600	1569	1569	1600
Adj Flow Rate, veh/h	16	5	11	103	5	147	5	625	141	185	652	11
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	70	153	311	7	206	647	1743	393	606	2162	36
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	1.00	1.00	1.00	0.96	0.96	0.96
Sat Flow, veh/h	1230	437	962	1392	44	1296	769	2418	545	699	2999	51
Grp Volume(v), veh/h	16	0	16	103	0	152	5	385	381	185	324	339
Grp Sat Flow(s),veh/h/ln	1230	0	1399	1392	0	1340	769	1490	1473	699	1490	1560
Q Serve(g_s), s	0.9	0.0	0.7	4.8	0.0	7.5	0.0	0.0	0.0	1.2	0.9	0.9
Cycle Q Clear(g_c), s	8.4	0.0	0.7	5.4	0.0	7.5	0.9	0.0	0.0	1.2	0.9	0.9
Prop In Lane	1.00		0.69	1.00		0.97	1.00		0.37	1.00		0.03
Lane Grp Cap(c), veh/h	166	0	223	311	0	213	647	1074	1061	606	1074	1124
V/C Ratio(X)	0.10	0.00	0.07	0.33	0.00	0.71	0.01	0.36	0.36	0.31	0.30	0.30
Avail Cap(c_a), veh/h	283	0	356	443	0	341	647	1074	1061	606	1074	1124
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	25.0	27.3	0.0	27.9	0.0	0.0	0.0	0.4	0.4	0.4
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.6	0.0	4.4	0.0	0.9	0.9	1.3	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	1.9	0.0	3.0	0.0	0.3	0.3	0.4	0.5	0.5
LnGrp Delay(d),s/veh	32.1	0.0	25.2	28.0	0.0	32.3	0.0	0.9	0.9	1.7	1.1	1.1
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		32			255			771			848	
Approach Delay, s/veh		28.6			30.5			0.9			1.3	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		54.7		15.3		54.7		15.3
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		2.9		10.4		3.2		9.5
Green Ext Time (p_c), s		15.2		0.8		15.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	5.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

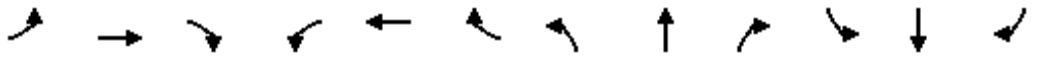
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	55	100	611	164	154	553
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1569	1569	1569	1569
Adj Flow Rate, veh/h	60	109	664	0	167	601
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	162	144	2300	1029	646	2300
Arrive On Green	0.11	0.11	0.77	0.00	1.00	1.00
Sat Flow, veh/h	1494	1333	3059	1333	768	3059
Grp Volume(v), veh/h	60	109	664	0	167	601
Grp Sat Flow(s),veh/h/ln	1494	1333	1490	1333	768	1490
Q Serve(g_s), s	2.6	5.6	4.6	0.0	1.8	0.0
Cycle Q Clear(g_c), s	2.6	5.6	4.6	0.0	6.4	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	162	144	2300	1029	646	2300
V/C Ratio(X)	0.37	0.76	0.29	0.00	0.26	0.26
Avail Cap(c_a), veh/h	359	320	2300	1029	646	2300
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.95	0.95
Uniform Delay (d), s/veh	29.0	30.3	2.3	0.0	0.3	0.0
Incr Delay (d2), s/veh	1.4	7.8	0.3	0.0	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.3	1.9	0.0	0.5	0.1
LnGrp Delay(d),s/veh	30.4	38.1	2.7	0.0	1.2	0.3
LnGrp LOS	C	D	A		A	A
Approach Vol, veh/h	169		664			768
Approach Delay, s/veh	35.4		2.7			0.5
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		58.2				58.2		11.8
Change Period (Y+Rc), s		* 4.2				* 4.2		4.2
Max Green Setting (Gmax), s		* 45				* 45		16.8
Max Q Clear Time (g_c+I1), s		6.6				8.4		7.6
Green Ext Time (p_c), s		13.5				13.3		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	5	5	145	10	90	5	535	160	55	245	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	11	5	5	158	11	98	5	582	174	60	266	5
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	113	113	313	21	190	55	1606	476	346	1521	30
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	1.00	1.00	1.00	0.72	0.72	0.72
Sat Flow, veh/h	1279	721	721	1399	137	1217	4	2218	657	380	2102	41
Grp Volume(v), veh/h	11	0	10	158	0	109	414	0	347	158	0	173
Grp Sat Flow(s),veh/h/ln	1279	0	1441	1399	0	1354	1567	0	1312	1103	0	1420
Q Serve(g_s), s	0.6	0.0	0.4	7.6	0.0	5.2	0.0	0.0	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	5.7	0.0	0.4	8.0	0.0	5.2	0.0	0.0	0.0	2.2	0.0	2.7
Prop In Lane	1.00		0.50	1.00		0.90	0.01		0.50	0.38		0.03
Lane Grp Cap(c), veh/h	208	0	225	313	0	211	1186	0	949	869	0	1028
V/C Ratio(X)	0.05	0.00	0.04	0.50	0.00	0.52	0.35	0.00	0.37	0.18	0.00	0.17
Avail Cap(c_a), veh/h	443	0	490	570	0	460	1186	0	949	869	0	1028
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	25.1	28.5	0.0	27.1	0.0	0.0	0.0	3.0	0.0	3.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	1.9	0.8	0.0	1.1	0.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	3.0	0.0	2.1	0.3	0.0	0.3	1.0	0.0	1.1
LnGrp Delay(d),s/veh	29.8	0.0	25.2	29.7	0.0	29.0	0.8	0.0	1.1	3.4	0.0	3.4
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		21			267			761			331	
Approach Delay, s/veh		27.6			29.5			0.9			3.4	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		54.9		15.1		54.9		15.1
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 38		* 24		* 38		* 24
Max Q Clear Time (g_c+I1), s		2.0		7.7		4.7		10.0
Green Ext Time (p_c), s		8.9		1.0		8.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	1	10	0	20	5	680	5	10	380	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	11	0	22	5	739	5	11	413	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	818	1193	209	981	1193	372	418	0	0	745	0	0
Stage 1	438	438	-	753	753	-	-	-	-	-	-	-
Stage 2	380	755	-	228	440	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	268	186	797	204	186	625	1138	-	-	859	-	-
Stage 1	567	577	-	368	416	-	-	-	-	-	-	-
Stage 2	614	415	-	754	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	181	797	200	181	625	1138	-	-	859	-	-
Mov Cap-2 Maneuver	254	181	-	200	181	-	-	-	-	-	-	-
Stage 1	562	567	-	365	413	-	-	-	-	-	-	-
Stage 2	588	412	-	740	566	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	15.3	0.1	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	254	797	200	625	859	-	-
HCM Lane V/C Ratio	0.005	-	-	0.004	0.001	0.054	0.035	0.013	-	-
HCM Control Delay (s)	8.2	0	-	19.2	9.5	24	11	9.2	0.1	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	2	1	100	1	110	5	575	55	70	314	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1569	1569	1600	1569	1569	1600
Adj Flow Rate, veh/h	3	2	1	109	1	120	5	625	60	76	341	5
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	127	64	282	1	171	877	2065	198	669	2259	33
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1265	988	494	1408	11	1324	1031	2749	264	754	3007	44
Grp Volume(v), veh/h	3	0	3	109	0	121	5	338	347	76	169	177
Grp Sat Flow(s),veh/h/ln	1265	0	1481	1408	0	1335	1031	1490	1522	754	1490	1561
Q Serve(g_s), s	0.2	0.0	0.1	5.1	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	0.1	5.3	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.33	1.00		0.99	1.00		0.17	1.00		0.03
Lane Grp Cap(c), veh/h	156	0	191	282	0	172	877	1119	1143	669	1119	1173
V/C Ratio(X)	0.02	0.00	0.02	0.39	0.00	0.70	0.01	0.30	0.30	0.11	0.15	0.15
Avail Cap(c_a), veh/h	405	0	483	559	0	435	877	1119	1143	669	1119	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	26.6	28.9	0.0	29.2	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	5.2	0.0	0.7	0.7	0.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	2.1	0.0	2.5	0.0	0.2	0.2	0.1	0.1	0.1
LnGrp Delay(d),s/veh	32.2	0.0	26.7	29.8	0.0	34.4	0.0	0.7	0.7	0.3	0.3	0.3
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		6			230			690			422	
Approach Delay, s/veh		29.5			32.2			0.7			0.3	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.8		13.2		56.8		13.2
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 39		* 23		* 39		* 23
Max Q Clear Time (g_c+I1), s		2.0		8.2		2.0		8.1
Green Ext Time (p_c), s		8.5		0.9		8.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	65	570	155	115	300
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1569	1569	1569	1569
Adj Flow Rate, veh/h	49	71	620	0	125	326
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	113	101	2397	1072	705	2397
Arrive On Green	0.08	0.08	0.80	0.00	1.00	1.00
Sat Flow, veh/h	1494	1333	3059	1333	800	3059
Grp Volume(v), veh/h	49	71	620	0	125	326
Grp Sat Flow(s),veh/h/ln	1494	1333	1490	1333	800	1490
Q Serve(g_s), s	2.2	3.6	3.6	0.0	0.9	0.0
Cycle Q Clear(g_c), s	2.2	3.6	3.6	0.0	4.5	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	113	101	2397	1072	705	2397
V/C Ratio(X)	0.43	0.70	0.26	0.00	0.18	0.14
Avail Cap(c_a), veh/h	401	358	2397	1072	705	2397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.98	0.98
Uniform Delay (d), s/veh	30.9	31.6	1.7	0.0	0.1	0.0
Incr Delay (d2), s/veh	2.6	8.5	0.3	0.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.6	1.6	0.0	0.3	0.0
LnGrp Delay(d),s/veh	33.5	40.1	2.0	0.0	0.7	0.1
LnGrp LOS	C	D	A		A	A
Approach Vol, veh/h	120		620			451
Approach Delay, s/veh	37.4		2.0			0.3
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		60.5				60.5		9.5
Change Period (Y+Rc), s		* 4.2				* 4.2		4.2
Max Green Setting (Gmax), s		* 43				* 43		18.8
Max Q Clear Time (g_c+I1), s		5.6				6.5		5.6
Green Ext Time (p_c), s		9.0				9.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.9
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	35	10	185	10	135	10	535	195	185	640	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	11	38	11	201	11	147	11	582	212	201	696	11
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	244	71	349	20	262	60	1403	504	397	1255	20
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	1.00	1.00	1.00	0.67	0.67	0.67
Sat Flow, veh/h	1223	1170	339	1351	94	1254	11	2089	750	474	1869	30
Grp Volume(v), veh/h	11	0	49	201	0	158	439	0	366	378	0	530
Grp Sat Flow(s),veh/h/ln	1223	0	1509	1351	0	1347	1556	0	1295	950	0	1422
Q Serve(g_s), s	0.6	0.0	1.9	10.0	0.0	7.4	0.0	0.0	0.0	12.0	0.0	13.7
Cycle Q Clear(g_c), s	7.9	0.0	1.9	11.9	0.0	7.4	0.0	0.0	0.0	13.8	0.0	13.7
Prop In Lane	1.00		0.22	1.00		0.93	0.03		0.58	0.53		0.02
Lane Grp Cap(c), veh/h	229	0	315	349	0	281	1097	0	869	717	0	955
V/C Ratio(X)	0.05	0.00	0.16	0.58	0.00	0.56	0.40	0.00	0.42	0.53	0.00	0.56
Avail Cap(c_a), veh/h	285	0	384	410	0	343	1097	0	869	717	0	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	22.7	27.5	0.0	24.8	0.0	0.0	0.0	5.8	0.0	6.0
Incr Delay (d2), s/veh	0.1	0.0	0.2	1.5	0.0	1.8	1.1	0.0	1.5	2.8	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.8	3.9	0.0	2.9	0.3	0.0	0.4	4.3	0.0	5.9
LnGrp Delay(d),s/veh	28.5	0.0	22.9	29.0	0.0	26.6	1.1	0.0	1.5	8.6	0.0	8.4
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		60			359			805			908	
Approach Delay, s/veh		23.9			27.9			1.3			8.4	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.2		18.8		51.2		18.8
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		2.0		9.9		15.8		13.9
Green Ext Time (p_c), s		18.7		1.2		15.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	10	0	30	10	705	10	50	775	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	5	11	0	33	11	766	11	54	842	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1362	1756	427	1323	1755	389	853	0	0	777	0	0
Stage 1	957	957	-	793	793	-	-	-	-	-	-	-
Stage 2	405	799	-	530	962	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	107	84	576	114	84	610	782	-	-	835	-	-
Stage 1	277	334	-	348	398	-	-	-	-	-	-	-
Stage 2	593	396	-	500	332	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	90	72	576	100	72	610	782	-	-	835	-	-
Mov Cap-2 Maneuver	90	72	-	100	72	-	-	-	-	-	-	-
Stage 1	270	293	-	339	388	-	-	-	-	-	-	-
Stage 2	547	386	-	434	291	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.5	19.7	0.2	1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	782	-	-	90	576	100	610	835	-	-
HCM Lane V/C Ratio	0.014	-	-	0.06	0.009	0.109	0.053	0.065	-	-
HCM Control Delay (s)	9.7	0.1	-	47.6	11.3	45.3	11.2	9.6	0.5	-
HCM Lane LOS	A	A	-	E	B	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.4	0.2	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	5	10	95	5	135	5	575	130	170	600	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1569	1569	1600	1569	1569	1600
Adj Flow Rate, veh/h	16	5	11	103	5	147	5	625	141	185	652	11
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	70	153	311	7	206	520	1743	393	606	2162	36
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	1.00	1.00	1.00	0.24	0.24	0.24
Sat Flow, veh/h	1230	437	962	1392	44	1296	769	2418	545	699	2999	51
Grp Volume(v), veh/h	16	0	16	103	0	152	5	385	381	185	324	339
Grp Sat Flow(s),veh/h/ln	1230	0	1399	1392	0	1340	769	1490	1473	699	1490	1560
Q Serve(g_s), s	0.9	0.0	0.7	4.8	0.0	7.5	0.1	0.0	0.0	15.5	12.5	12.5
Cycle Q Clear(g_c), s	8.4	0.0	0.7	5.4	0.0	7.5	12.6	0.0	0.0	15.5	12.5	12.5
Prop In Lane	1.00		0.69	1.00		0.97	1.00		0.37	1.00		0.03
Lane Grp Cap(c), veh/h	166	0	223	311	0	213	520	1074	1061	606	1074	1124
V/C Ratio(X)	0.10	0.00	0.07	0.33	0.00	0.71	0.01	0.36	0.36	0.31	0.30	0.30
Avail Cap(c_a), veh/h	283	0	356	443	0	341	520	1074	1061	606	1074	1124
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	25.0	27.3	0.0	27.9	1.6	0.0	0.0	13.3	12.2	12.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.6	0.0	4.4	0.0	0.9	0.9	1.3	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	1.9	0.0	3.0	0.0	0.3	0.3	3.2	5.4	5.6
LnGrp Delay(d),s/veh	32.1	0.0	25.2	28.0	0.0	32.3	1.6	0.9	0.9	14.6	12.9	12.9
LnGrp LOS	C		C	C		C	A	A	A	B	B	B
Approach Vol, veh/h		32			255			771			848	
Approach Delay, s/veh		28.6			30.5			0.9			13.3	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		54.7		15.3		54.7		15.3
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		14.6		10.4		17.5		9.5
Green Ext Time (p_c), s		13.3		0.8		12.7		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

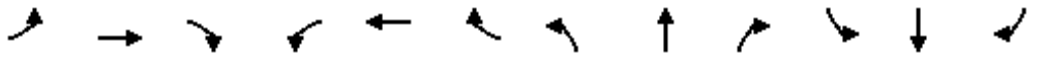
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	55	100	611	164	154	553
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1569	1569	1569	1569
Adj Flow Rate, veh/h	60	109	664	0	167	601
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	161	144	2301	1029	646	2301
Arrive On Green	0.11	0.11	0.77	0.00	1.00	1.00
Sat Flow, veh/h	1494	1333	3059	1333	768	3059
Grp Volume(v), veh/h	60	109	664	0	167	601
Grp Sat Flow(s),veh/h/ln	1494	1333	1490	1333	768	1490
Q Serve(g_s), s	2.6	5.6	4.6	0.0	1.8	0.0
Cycle Q Clear(g_c), s	2.6	5.6	4.6	0.0	6.4	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	161	144	2301	1029	646	2301
V/C Ratio(X)	0.37	0.76	0.29	0.00	0.26	0.26
Avail Cap(c_a), veh/h	341	305	2301	1029	646	2301
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	0.95	0.95
Uniform Delay (d), s/veh	29.0	30.3	2.3	0.0	0.3	0.0
Incr Delay (d2), s/veh	1.4	7.8	0.3	0.0	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.3	1.9	0.0	0.5	0.1
LnGrp Delay(d),s/veh	30.4	38.2	2.7	0.0	1.2	0.3
LnGrp LOS	C	D	A		A	A
Approach Vol, veh/h	169		664			768
Approach Delay, s/veh	35.4		2.7			0.5
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		58.2				58.2		11.8
Change Period (Y+Rc), s		* 4.2				* 4.2		4.2
Max Green Setting (Gmax), s		* 46				* 46		16.0
Max Q Clear Time (g_c+I1), s		6.6				8.4		7.6
Green Ext Time (p_c), s		13.6				13.4		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	5	5	145	10	90	5	535	160	55	245	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	11	5	5	158	11	98	5	582	174	60	266	5
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	113	113	313	21	190	55	1606	476	328	1478	29
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1279	721	721	1399	137	1217	4	2218	657	355	2041	40
Grp Volume(v), veh/h	11	0	10	158	0	109	414	0	347	155	0	176
Grp Sat Flow(s),veh/h/ln	1279	0	1441	1399	0	1354	1567	0	1312	1017	0	1420
Q Serve(g_s), s	0.6	0.0	0.4	7.6	0.0	5.2	0.0	0.0	7.0	0.6	0.0	2.7
Cycle Q Clear(g_c), s	5.7	0.0	0.4	8.0	0.0	5.2	6.9	0.0	7.0	7.6	0.0	2.7
Prop In Lane	1.00		0.50	1.00		0.90	0.01		0.50	0.39		0.03
Lane Grp Cap(c), veh/h	208	0	225	313	0	211	1186	0	949	807	0	1028
V/C Ratio(X)	0.05	0.00	0.04	0.50	0.00	0.52	0.35	0.00	0.37	0.19	0.00	0.17
Avail Cap(c_a), veh/h	443	0	490	570	0	460	1186	0	949	807	0	1028
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	25.1	28.5	0.0	27.1	3.6	0.0	3.6	3.1	0.0	3.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	1.9	0.8	0.0	1.1	0.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	3.0	0.0	2.1	3.1	0.0	2.8	1.0	0.0	1.1
LnGrp Delay(d),s/veh	29.8	0.0	25.2	29.7	0.0	29.0	4.4	0.0	4.7	3.6	0.0	3.4
LnGrp LOS	C		C	C		C	A		A	A		A
Approach Vol, veh/h		21			267			761			331	
Approach Delay, s/veh		27.6			29.5			4.6			3.5	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		54.9		15.1		54.9		15.1
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 38		* 24		* 38		* 24
Max Q Clear Time (g_c+I1), s		9.0		7.7		9.6		10.0
Green Ext Time (p_c), s		8.4		1.0		8.4		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	1	10	0	20	5	680	5	10	380	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	11	0	22	5	739	5	11	413	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	818	1193	209	981	1193	372	418	0	0	745	0	0
Stage 1	438	438	-	753	753	-	-	-	-	-	-	-
Stage 2	380	755	-	228	440	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	268	186	797	204	186	625	1138	-	-	859	-	-
Stage 1	567	577	-	368	416	-	-	-	-	-	-	-
Stage 2	614	415	-	754	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	181	797	200	181	625	1138	-	-	859	-	-
Mov Cap-2 Maneuver	254	181	-	200	181	-	-	-	-	-	-	-
Stage 1	562	567	-	365	413	-	-	-	-	-	-	-
Stage 2	588	412	-	740	566	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	15.3	0.1	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	254	797	200	625	859	-	-
HCM Lane V/C Ratio	0.005	-	-	0.004	0.001	0.054	0.035	0.013	-	-
HCM Control Delay (s)	8.2	0	-	19.2	9.5	24	11	9.2	0.1	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	6	230	636	423
Demand Flow Rate, veh/h	6	235	648	432
Vehicles Circulating, veh/h	589	702	211	169
Vehicles Exiting, veh/h	12	152	384	768
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.9	13.3	13.2	9.1
Approach LOS	A	B	B	A

Lane	Left	Left	Left	Right	Bypass	Left	Right
Designated Moves	LTR	LTR	LT	R	R	LT	R
Assumed Moves	LTR	LTR	LT	R	R	LT	R
RT Channelized					Free		
Lane Util	1.000	1.000	0.906	0.094		0.988	0.012
Critical Headway, s	5.193	5.193	5.193	5.193		5.193	5.193
Entry Flow, veh/h	6	235	587	61	0	427	5
Cap Entry Lane, veh/h	627	560	915	915	1632	954	954
Entry HV Adj Factor	0.993	0.980	0.981	0.984	0.980	0.980	1.000
Flow Entry, veh/h	6	230	576	60	0	418	5
Cap Entry, veh/h	623	549	897	900	1600	935	954
V/C Ratio	0.010	0.420	0.642	0.067	0.000	0.447	0.005
Control Delay, s/veh	5.9	13.3	14.1	4.6	0.0	9.2	3.8
LOS	A	B	B	A	A	A	A
95th %tile Queue, veh	0	2	5	0	0	2	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	121
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	731
Vehicles Exiting, veh/h	128
Follow-Up Headway, s	3.186
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.8
Approach LOS	A

Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Critical Headway, s	5.193
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	544
Entry HV Adj Factor	0.984
Flow Entry, veh/h	121
Cap Entry, veh/h	535
V/C Ratio	0.226
Control Delay, s/veh	9.8
LOS	A
95th %tile Queue, veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	35	10	185	10	135	10	535	195	185	640	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1569	1569	1600	1569	1569	1600	1600	1569	1600	1600	1569	1600
Adj Flow Rate, veh/h	11	38	11	201	11	147	11	582	212	201	696	11
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	244	71	349	20	262	60	1403	504	346	1209	20
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.67	0.67	0.67	0.67	0.67	0.67
Sat Flow, veh/h	1223	1170	339	1351	94	1254	11	2089	750	398	1801	30
Grp Volume(v), veh/h	11	0	49	201	0	158	439	0	366	378	0	530
Grp Sat Flow(s),veh/h/ln	1223	0	1509	1351	0	1347	1556	0	1295	806	0	1422
Q Serve(g_s), s	0.6	0.0	1.9	10.0	0.0	7.4	0.0	0.0	9.1	17.1	0.0	13.7
Cycle Q Clear(g_c), s	7.9	0.0	1.9	11.9	0.0	7.4	8.9	0.0	9.1	26.1	0.0	13.7
Prop In Lane	1.00		0.22	1.00		0.93	0.03		0.58	0.53		0.02
Lane Grp Cap(c), veh/h	229	0	315	349	0	281	1097	0	869	620	0	955
V/C Ratio(X)	0.05	0.00	0.16	0.58	0.00	0.56	0.40	0.00	0.42	0.61	0.00	0.56
Avail Cap(c_a), veh/h	285	0	384	410	0	343	1097	0	869	620	0	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	22.7	27.5	0.0	24.8	5.2	0.0	5.3	9.5	0.0	6.0
Incr Delay (d2), s/veh	0.1	0.0	0.2	1.5	0.0	1.8	1.1	0.0	1.5	4.4	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.8	3.9	0.0	2.9	4.1	0.0	3.5	5.8	0.0	5.9
LnGrp Delay(d),s/veh	28.5	0.0	22.9	29.0	0.0	26.6	6.3	0.0	6.8	13.9	0.0	8.4
LnGrp LOS	C		C	C		C	A		A	B		A
Approach Vol, veh/h		60			359			805			908	
Approach Delay, s/veh		23.9			27.9			6.5			10.7	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.2		18.8		51.2		18.8
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2
Max Green Setting (Gmax), s		* 44		* 18		* 44		* 18
Max Q Clear Time (g_c+I1), s		11.1		9.9		28.1		13.9
Green Ext Time (p_c), s		16.7		1.2		10.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	10	0	30	10	705	10	50	775	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	5	11	0	33	11	766	11	54	842	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1362	1756	427	1323	1755	389	853	0	0	777	0	0
Stage 1	957	957	-	793	793	-	-	-	-	-	-	-
Stage 2	405	799	-	530	962	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	107	84	576	114	84	610	782	-	-	835	-	-
Stage 1	277	334	-	348	398	-	-	-	-	-	-	-
Stage 2	593	396	-	500	332	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	90	72	576	100	72	610	782	-	-	835	-	-
Mov Cap-2 Maneuver	90	72	-	100	72	-	-	-	-	-	-	-
Stage 1	270	293	-	339	388	-	-	-	-	-	-	-
Stage 2	547	386	-	434	291	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.5	19.7	0.2	1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	782	-	-	90	576	100	610	835	-	-
HCM Lane V/C Ratio	0.014	-	-	0.06	0.009	0.109	0.053	0.065	-	-
HCM Control Delay (s)	9.7	0.1	-	47.6	11.3	45.3	11.2	9.6	0.5	-
HCM Lane LOS	A	A	-	E	B	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.4	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	23.9
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	33	256	663	859
Demand Flow Rate, veh/h	33	261	676	876
Vehicles Circulating, veh/h	1032	721	389	178
Vehicles Exiting, veh/h	22	339	676	804
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.2	14.9	18.3	33.2
Approach LOS	B	B	C	D

Lane	Left	Left	Left	Right	Bypass	Left	Right
Designated Moves	LTR	LTR	LT	R	R	LT	R
Assumed Moves	LTR	LTR	LT	R	R	LT	R
RT Channelized					Free		
Lane Util	1.000	1.000	0.836	0.164		0.987	0.013
Critical Headway, s	5.193	5.193	5.193	5.193		5.193	5.193
Entry Flow, veh/h	33	261	565	111	0	865	11
Cap Entry Lane, veh/h	403	549	766	766	1632	946	946
Entry HV Adj Factor	0.997	0.982	0.981	0.982	0.980	0.980	1.000
Flow Entry, veh/h	33	256	554	109	0	848	11
Cap Entry, veh/h	401	539	751	752	1600	927	946
V/C Ratio	0.082	0.475	0.738	0.145	0.000	0.915	0.012
Control Delay, s/veh	10.2	14.9	20.7	6.3	0.0	33.6	3.9
LOS	B	B	C	A	A	D	A
95th %tile Queue, veh	0	3	7	1	0	14	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	170
Demand Flow Rate, veh/h	174
Vehicles Circulating, veh/h	886
Vehicles Exiting, veh/h	179
Follow-Up Headway, s	3.186
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	14.4
Approach LOS	B

Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Critical Headway, s	5.193
Entry Flow, veh/h	174
Cap Entry Lane, veh/h	466
Entry HV Adj Factor	0.976
Flow Entry, veh/h	170
Cap Entry, veh/h	455
V/C Ratio	0.373
Control Delay, s/veh	14.4
LOS	B
95th %tile Queue, veh	2

APPENDIX F

Environmental

ENGINEERING
PLANNING
SURVEYING
PC

Bill Nye Avenue
Corridor Study
Laramie, Wyoming

Environmental Review

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April 18, 2016

WEST Inc.

NATURAL RESOURCES ◆ SCIENTIFIC SOLUTIONS

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1.0 Purpose and Need

1.1 Project Description

Western EcoSystems Technology, Inc. (WEST) has completed this Environmental Review (ER) in support of the Bill Nye Corridor Study. For the purposes of this ER, the boundaries of the Bill Nye Corridor Study area are Russell Street to Interstate 80 (north to south) and 15th Street to 3rd Street (east to west) (Figure 1). This ER presents observed environmental conditions and documents any potential impacts to biological resources associated with the alignment alternatives identified in the Bill Nye Corridor Study (AVI 2016).

The alignment alternatives are intended to connect Bill Nye Avenue with 15th Street and 3rd Street. The Bill Nye Corridor Study area is crossed by Spring Creek, which runs from 3rd Street northeast near 9th Street and then runs parallel, south of Russel Street (Figure 1). The Bill Nye Corridor Study area generally consists of R1-Low Density Residential, R2-Medium Density Residential, R3-Multifamily Residential, B1-Limited Business, B2-General Business with various residential and business developments.

1.2 Purpose and Need

The City of Laramie (City) envisions the Bill Nye corridor to be a major east-west Minor Arterial connecting the City's southern gateway with its eastern gateway (i.e. connect 3rd Street and Grand Avenue). The primary purpose of the Bill Nye Corridor Study is to create an comprehensive planning document to guide and promote future development of the corridor.

2.0 Alignment Alternatives Proposed

After careful consideration and vetting through the Bill Nye Corridor Study steering committee (AVI 2016), the City identified three alignment alternatives (Figure 1) for planning purposes.

- No Action Alternative: Continuing using 15th Street and Russel Street to connect 3rd Street and Bill Nye Avenue. This alternative would include a bridge enlargement on 15th Street at the Spring Creek crossing.
- Bill Nye Avenue Realignment: Connecting Bill Nye Avenue to 9th Street and 3rd Street south of Spring Creek at Boswell Drive. This alternative would include a roundabout at the intersection of 3rd Street and Boswell Drive/Bill Nye Avenue and pedestrian facilities.
- East Palmer Drive: Connecting Bill Nye Avenue to 9th Street and 3rd Street north of Spring Creek opposite of East Palmer Drive. This alternative would include a cul-de-sac on Boswell Drive and pedestrian facilities.

Figure 1: Bill Nye Corridor Study Area and Proposed Alignment Alternatives.

3.0 Affected Environment

3.1 Land Use/Important Farmland/Formally Classified Lands

3.1.1 Affected Environment

The Bill Nye Avenue Realignment alternative and East Palmer Drive alternative (Figure 2) both cross the same land use zoning, low and medium density residential (R1 and R) and limited business and general business properties (B1 and B2). The majority of limited business zoned lands (B1) crossed by the alternatives were vacant properties. The No Action Alternative (Figure 2) generally crosses residentially developed areas of various densities, R1, R2, and R3, and a small area zoned general business (B2) at the intersection of Russel Street and 3rd Street.

WEST accessed the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey to identify surficial soil types within the proposed alternatives. All three alignment alternatives were identified to be underlain by Gypla-Urban land complex with little to no slope. As described by the Soil Survey of Albany County Area, Wyoming (Soil Survey, NRCS 1998), Gypla-Urban soils are 50% Gypla loam and 40% Urban land. The Soil Survey described Gylpa soils as moderately permeable, poorly drained soils with a high content of calcium carbonate, gysum, and other salts that can restrict plant growth. Urban land is a generic term used to describe lands covered in buildings, asphalt, or concrete whereby the original soils have been substantially altered (NRCS 1998). The Soil Survey suggested that Urban soils, fill material, commonly found in the City are a fine red sandy loam. The Soil Survey did not describe any Prime or Unique Farmlands within any of the alignment alternatives; therefore, no impacts to Prime or Unique farmlands are likely.

3.2 Waterbodies and Floodplains

3.2.1 Affected Environment

As mentioned previously, Spring Creek crosses the Bill Nye Corridor Study area and the creek is crossed by each alignment alternative (Figure 2). Spring Creek was not identified as a Wild or Scenic River, (Rivers 2009), a Class I water (WDEQ 2001), nor a designated blue or red ribbon stream (WGFD 2016).

According to the Federal Emergency Management Agency (FEMA) flood map for the proposed project area (Map # 56001C1765E, FEMA 2011), the East Palmer Drive alternative crosses and has the potential to impact the FEMA defined floodplains for Spring Creek (FEMA 2011). Pedestrian facilities associates with the Bill Nye Avenue Realignment alternative would cross and potentially affect Spring Creek's floodplain. Under the No Action Alternative, the proposed bridge expansion also has the potential to impact the Spring Creek floodplains.

Detailed project engineering and design will be necessary to determine if Section 401 and Section 404 permits would be required from U. S. Army Corps of Engineers (ACOE) and if a Water Quality Certification from the Wyoming Department of Environmental Quality – Water Quality Division would be necessary.

3.3 Wetlands

3.3.1 Affected Environment

WEST conducted surveys along the Bill Nye Avenue Realignment and East Palmer Drive alternatives including associated pedestrian facilities. At the time of WEST's surveys, WEST was unaware of the possible bridge expansion as part of the No Action Alternative, and therefore did not survey this location. During surveys, WEST identify wetlands and other waters of the U.S. that are regulated by the ACOE.

WEST delineated six wetlands (Figure 2), all of which were palustrine emergent wetlands dominated by herbaceous vegetation. Two of the wetlands occur at the Spring Creek crossings of the East Palmer Drive and the pedestrian facilities of the Bill Nye Avenue Realignment alternatives. Both of these wetlands are located along the low terraces of the creek, on either side of the channel. Spring Creek is a waters of the U.S.

The four remaining wetlands were delineated along the Bill Nye Avenue Realignment alternative. The majority of this alternative occurs within a broad, saline bottomland area that likely has a seasonal high water table. Hydrology in this area has likely been altered from adjacent residential and commercial development, possibly resulting in additional runoff into the lowland area. Two of the four wetlands were identified as "Wetland" (Figure 3) and are likely jurisdictional. The other two wetlands along the Bill Nye Avenue Realignment alternative were identified as "Potential Wetland" and will require further field surveys during the growing season to determine their regulatory status.

Due to substantial snow cover, surveys could not be completed near the proposed roundabout at the western terminus of the Bill Nye Avenue Realignment alternative (Figure 2). If this alternative is selected, surveys within this area will need to be conducted once snow cover has melted. Based on aerial review of this area, there are drainage ditches on either side of 3rd Street that are likely waters of the U.S. because of their direct hydrologic connection to the Laramie River. Additionally, there may be wetlands associated with the ditches. The No Action Alternative would require a bridge expansion for the crossing of Spring Creek. This area was not surveyed and will require additional review, if this alternative is selected. However, assuming similar conditions are present at the No Action Alternative crossing of Spring Creek as were observed at the East Palmer Drive alternative crossing, wetlands within the low terrace of the creek are likely.

WEST discussed the "Potential Wetlands" with the ACOE and they recommended additional field investigations during the appropriate season. The ACOE also identified an existing mitigation area between I-80 and the westbound on/off ramps (Figure 2). It appears that a portion of the "Potential Wetland" mapped in this area overlaps part of an existing mitigation site. The ACOE informed WEST that affecting an existing mitigation site would result in additional project permitting and higher mitigation ratios.

Detailed project engineering and design would be necessary to determine if an ACOE Nationwide or Individual Permit would be needed for the proposed project.

Figure 2: Preliminary identification of Potential Jurisdictional Waters.

3.4 Historic Properties

3.4.1 Affected Environment

The alignment alternatives are located on land previously disturbed as defined by the Soil Survey. However, there still exists the possibility that cultural resources may be present within the alignment alternatives. WEST contacted Wyoming State Parks and Cultural Resources State Historic Preservation Office (SHPO) requesting a review of the proposed project with respect to known or potential cultural or historical resources in the alignment alternatives (Appendix A). Mary Hopkins of the Wyoming SHPO contacted WEST via telephone and suggested SHPO would consult directly with the City or Wyoming Department of Transportation directly on this project.

3.5 Vegetation

3.6.1 Affected Environment

Dominant plant species identified within the proposed project area included greasewood (*Sarcobatus vermiculatus*) in the shrub layer and inland salt grass (Distichilis spicata) in the ground cover. Due to the disturbed nature of the area, no substantial representation of trees was present. The dominance of greasewood is consistent with high salt containing Gyla soils, as is inland salt grass. Inland salt grass, with its shallow stolons, is further indicative of Gylpa soils as this soil type commonly restricts significant root growth in plants. Areas identified as wetlands or potential wetlands were observed to contain common wetland plants such as sedges (*Carex utriculata*), Colorado rush (*Juncus confuses*), alkali cordgrass (*Spartina gracilis*), and cattails (*Typha latifolia*).

While all of the alignment alternatives would remove vegetation, they all consisted of previously disturbed land within the City of Laramie. The vegetation potentially removed and/or disturbed outside of wetlands by a selected alignment alternative would not provide unique or critical wildlife habitat. The removal of the vegetation is unlikely to result in long-term destabilization of soils or increased erosion. Previously disturbed areas are susceptible to noxious or invasive plants establishment. The application of best management practices would minimize the establishment or spread of noxious or invasive plants regardless of the alignment alternative selected to be constructed.

3.6 Wildlife

3.6.1 Affected Environment

The generally urban setting of the alignment alternatives has significantly degraded wildlife habitats due to previous disturbances. As a result, wildlife in the area is likely dominated by species that generally are associated with human activity or are cosmopolitan in distribution. Species including American robins (*Turdus migratorius*), pigeons (*Columba livia*), European starlings (*Sturnus vulgaris*), cottontail rabbits (*Sylvigus nuttallii*), ground squirrels (*Urocitellus elegans*), kangaroo rats (*Dipodomys ordii*), bullfrogs (*Lithobates catesbeianus*) and garter snakes (*Thamnophis radix*) would be expected to be present within the alignment alternatives. Generally, it is expected that if a species occurs in the current heavily urbanized setting with the

existing disturbances to native plant communities, the new disturbances associated with the alignment alternatives would not significantly affect these species.

WEST sent letters to the Wyoming Game and Fish Department (WGFD) and the US Fish and Wildlife Service (USFWS) (Appendix A) requesting a review of their records in association with known or potential for agency concerns within the alignment alternatives. The USFWS' response is discussed in Section 3.7.1. WGFD identified no terrestrial wildlife concerns but did recommend several actions to protect aquatic resources within alignment alternatives (Appendix A). Aquatic protections recommended by WGDF included best management practices to ensure sediments and pollutants are confined and disturbed soils are re-vegetated to maintain water quality. WGFD recommended servicing and fueling of vehicles and equipment during construction be at least 500 feet from riparian areas. Lastly, WGFD identified several practices required under state statutes and Wyoming Game and Fish Commission Regulation to prevent the spread of aquatic invasive species (Appendix A). Furthermore, publically available data from WGFD suggest no known wildlife migration corridors in alignment alternatives (WGFD 2015).

3.7 Special Status Species

3.7.1 Affected Environment

WEST performed an Information for Planning and Conservation (IPaC) review and generated an IPaC Trust Resources Report (IPaC Report) through the Environmental Conservation Online System of the USFWS for potential federally listed species in the Bill Nye Corridor Study area. The IPaC Report (2016) suggested the potential for several species protected under the Endangered Species Act (ESA 1973) within the Bill Nye Corridor Study area (Table 1). Of these species, three species may have suitable habitat present, the Preble's meadow jumping mouse, western prairie fringe orchid and Wyoming toad. The Wyoming toad and Preble's meadow jumping mouse prefer undisturbed grasslands near water that may be available within the Spring Creek floodplain and other isolated wet areas across alignment alternatives. However, the Preble's meadow jumping mouse generally prefers a woody plant community component within its preferred habitat, which is missing in the Spring Creek floodplain.

Table 1. Endangered and Threatened Species with a Potential to Occur in the Bill Nye Corridor Study Area.

Species	Scientific Name	Status	Habitat	Availability of Habitat
black-footed ferret	*Mustela nigripes*	Endangered	Prairie dog towns	No prairie dog towns in the alignment alternatives
least tern	*Sterna antillarum*	Endangered	Sandy and gravelly river and lake banks	No sandy riverbanks within alignment alternatives

Table 1. Endangered and Threatened Species with a Potential to Occur in the Bill Nye Corridor Study Area.

Species	Scientific Name	Status	Habitat	Availability of Habitat
pallid sturgeon	*Scaphirhynchus albus*	Endangered	Large murky river systems within the Mississippi and Missouri River basins	The alignment alternatives only contains Spring Creek. This waterbody is not suitable for this species.
piping plover	*Charadrius melodus*	Threatened	Sandy beaches and occasionally on sandy riverbanks, normally above the timberline.	No sandy riverbanks within alignment alternatives.
Preble's meadow jumping mouse	*Zapus hundsonius preblei*	Threatened	Relatively undisturbed grasslands near a consistent water source with a woody plant community component.	Unlikely as the Spring Creek floodplain may provide suitable habitat for this species, but lacks a woody plant community preferred by this species.
western prairie fringed orchid	*Platanthera praeclara*	Threatened	Mesic to wet unplowed tallgrass prairie and meadows. Sometimes found in roadside ditched.	Alignment alternatives are in disturbed area, void of unmolested plant communities.
whooping crane	*Grus americana*	Endangered	Breed in shallow grassy wetlands. Migrate stop-over in wide shallow river flats.	Not know to breed in Wyoming. No wide river flats in alignment alternatives.
Wyoming toad	*Bufo hemiophrys baxteri*	Endangered	Floodplains, ponds, and seeps in shortgrass plant communities.	The Spring Creek floodplain may provide suitable habitat for this species.

The IPaC Trust Resources Report also provided information regarding 20 birds (Table 2) protected under the Migratory Bird Treaty Act (MBTA 1918) and Bald and Golden Eagle Protection Act (BGEPA 1940). Of the bird species identified by the IPaC Report, American bittern (*Botaurus lentiginosus*), long billed curlew (*Numenius americanus*), short eared owl (*Asio flammeus*) and western grebe (*Aechmophorus occidentalis*) may have suitable habitat present with alignment alternatives, however the presence of these birds within the alignment alternatives are unlikely (Table 2). Suitable habitat or conditions are not present for the remaining 16 bird species (Table 2).

Table 2. Migratory Birds with a Potential to Occur in Bill Nye Corridor Study Area.

Species	Scientific Name	Habitat	Availability of Habitat
American bittern	*Botaurus lentiginosus*	Freshwater marshes and wetlands of tall but typically less dense vegetation. Commonly builds nest on cattails, bulrushes and sedges on shallow waters.	Suitable habitat may be present within wetlands and the low terrace of Spring Creek. However, the use of Spring Creek by American bittern is unlikely except as a stopover location.
Bald eagle	*Haliaeetus leucocephalus*	Typically nest in forested areas adjacent to large bodies of water, and generally avoids heavily developed area.	No suitable forested areas or large waterbodies present within alignment alternatives. Area likely too developed for eagle's preferences.
Black Rosy-finch	*Leucosticte atrata*	Breeds in alpine areas above the timberline usually near rock piles or cliffs. Winters in open areas of mountain meadows, high desert, plains and valleys.	Alignment alternatives are located below the timberline. No suitable alpine areas, high desert, plains or valley s present.
Brewer's sparrow	*Spizella breweri*	Sagebrush obligate. Nest in tall and densely branched shrubs, often big sagebrush.	No sagebrush nor dense shrub stands present in alignment alternatives.
Brown-capped Rosy-finch	*Leucosticte australis*	Nest in abandoned buildings, cliffs, caves, and rocks slides above the timberline. Winters in alpine tundras, high parks, meadow and mountain valleys.	Alignment alternatives are located below the timberline. No suitable alpine areas, high parks, or valleys present.
Burrowing owl	*Athene cunicularia*	Open treeless areas with low sparse vegetation, usually on gently sloping ground. Generally associated with high densities of burrowing mammals.	Alignment alternatives were not observed to have a high density of burrowing mammals present. High water table and sandy soils generally make burrowing prohibitive.
Cassin's finch	*Carpodacus cassinii*	Expansive stands of mature conifers, including lodgepole pine, ponderosa pine, limber pine, Douglas-fir, pinyon pine, and bristlecone pine. Occasionally found in aspen stands.	No stands of conifers or aspens present in alignment alternatives.
Ferruginous hawk	*Buteo regalis*	Nest on cliffs and rock outcropping or within groves of tress. Generally found in open country grasslands with abundant prairie dog or ground squirrel populations.	No suitable nesting locations nor substantial ground squirrel or prairie dog population are present in alignment alternatives.

Table 2. Migratory Birds with a Potential to Occur in Bill Nye Corridor Study Area.

Species	Scientific Name	Habitat	Availability of Habitat
Golden eagle	*Aquila chrysaetos*	Found in open and semi-open areas, generally associated with canyonlands, rimrock terrain, and riverside cliffs and bluffs. This is eagle avoids developed areas.	No suitable cliffs, bluffs rimrock or other preferred habitat present in alignment alternatives. Area likely too developed for eagle's preferences.
Greater sage-grouse	*Centrocercus urophasianus*	Sagebrush obligate. Usually nest in areas with relatively dense cover of big sagebrush. Growing chicks and hens can be found in areas with good forage, including irrigated pastures and alfalfa fields.	No sagebrush present in Alignment alternatives. No suitable high quality forage available.
Loggerhead shrike	*Lanius ludovicianus*	Inhabits open country with short vegetation and scattered trees and shrubs, nests in dense trees or shrubs particularly with spines or thorns. Found in agricultural fields, pastures, old orchards, riparian areas, prairies, and mowed roadsides.	No dense stands of trees or shrubs with thorns or spines suitable for nesting are present within the alignment alternatives.
Long-billed curlew	*Numenius americanus*	During breeding, found in native dry grasslands and sagebrush prairies on a mostly featureless terrain with damp to wet areas to provide foraging areas.	Marginal grasslands present within alignment alternatives for possible suitable habitat. However, existing disturbances makes it unlikely that this curlew would utilized the alignment alternatives.
McCown's longspur	*Calcarius mccownii*	Wide open sparse short grass plains, plowed and stubble fields, and bare or nearly bare ground.	Wide open plains are not present within the alignment alternatives.
Mountain plover	*Charadrius montanus*	Semi-arid plains, grasslands plateaus with very short grass or even bare ground and typically miles from water. Nest on barren ground in large prairie dog towns.	No prairie dog towns present within the alignment alternatives. Presences of Spring Creek and wetlands are likely to deter this bird.
Sage thrasher	*Oreoscoptes montanus*	Sagebrush obligate breeding exclusively in shrubsteppe communities dominated by big sagebrush. Requires dense ground cover for concealment.	No sagebrush or dense ground cover present within alignment alternatives.

Table 2. Migratory Birds with a Potential to Occur in Bill Nye Corridor Study Area.

Species	Scientific Name	Habitat	Availability of Habitat
Short-eared owl	*Asio flammeus*	Found in large open areas with low vegetation including prairies, meadows, shrubsteppe, savannas, tundras, marshes, and agricultural fields.	Low vegetation present, for potential habitat, however the lack of openness within the alignment alternatives likely deters this owl.
Swainson's hawk	*Buteo swainsoni*	Forages in native prairies and grasslands as well as agricultural fields such as alfalfa fields, row crops, pastures and grain fields. Relies on stands of trees adjacent to grasslands and agricultural fields for nesting.	Alignment alternatives do not contain suitable foraging areas or nesting structure.
Western grebe	*Aechmophorus occidentalis*	Breeds on freshwater lakes and marshes with extensive open water bordered by emergent vegetation. Feed mainly on fish, crustaceans and worms.	Possible habitat present within Spring Creek and its low terrace. However, the use of Spring Creek by western grebes is unlikely except as a stopover location.
Williamson's sapsucker	*Sphyrapicus thyroideus*	Cavity nesting woodpecker found in open conifer or aspen forest. Specialized in drilling for coniferous sap.	No substantial stand of conifer trees or forest present within alignment alternatives.
Willow flycatcher	*Empidonax traillii*	Nests in moist dense shrubby areas usually over or close to water.	No dense shrub cover near water within alignment alternatives.

Additional habitat or species surveys maybe warranted pending detailed project engineering and design.

As previously mentioned, WEST sent letters to the WGFD and USFWS (Appendix A) requesting a review of their records in association with known or potential for agency concerns within the proposed project area. USFWS responded, suggesting the alignment alternatives would be in compliance with the Endangered Species Act. However, the USFWS did further state that if any new information suggested affects to protected species that they should reanalyze the project in light of the new information.

4.0 References

AVI Professional Corporation (AVI). 2016. Bill Nye Corridor Study Draft March 2016.

Federal Emergency Management Agency (FEMA). 2011. Flood map 56001C1765E. Available online at: http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=9699&O_Y=4746&O_ZM=0.154664&O_SX=1454&O_SY=663&O_DPI=400&O_TH=94194158&O_EN=94468642&O_PG=1&O_MP=1&CT=0&DI=0&WD=14400&HT=10345&JX=1592&JY=723&MPT=0&MPS=0&ACT=4&KEY=94193705&ITEM=1&PICK_VIEW_CENTER.x=630&PICK_VIEW_CENTER.y=-285.5 Accessed April 4, 2016.

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5.0 List of Preparers

Gretchen Norman, Project Manager
David Taylor, Biologist, Report Preparation
Kurt Flaig, Biologist, Field Biologist
Jon Cicarelli, GIS Technician, Map Preparation

Attachment A: Agency Correspondence

April 5, 2016

Mary Hopkins, SHPO
Wyoming State Historic Preservation Office
2301 Central Avenue, Barrett Building, 3rd Floor
Cheyenne, WY 82002

RE: Identification of Cultural Resources at Bill Nye Corridor

Dear Ms. Hopkins:

The enclosed map shows the proposed project area for the Bill Nye Corridor Study. The proposed project area is in Section 4, Township 15 North, Range 73 West, Albany County, Wyoming.

The City of Laramie (the City), Community Development Department is analyzing alternative alignments of Bill Nye Avenue between 3rd and 9th Streets to identify and propose adequate mitigation of any adverse impacts caused by modification to the Corridor. The City will partner with the Wyoming Department of Transportation (WYDOT) and directly affected private property owners in this undertaking.

Bill Nye Avenue is envisioned to be the major east-west Minor Arterial corridor connecting the City's southern gateway with its eastern gateway. Bill Nye Avenue is a Minor Arterial street identified on the adopted Major Street and Highway Plan and shown in Laramie Comprehensive Plan. The Corridor is an approximate ½ mile long stretch of Bill Nye Avenue that will ultimately connect 9th Street to 3rd Street and traverses a 91-acre area bounded by 3rd Street, Russell Street, 9th Street, Interstate 80 and Boswell Drive. The area is bisected by the Spring Creek Channel which runs from the northeast corner of the area towards the southwest portion of the area.

The City of Laramie is committed to complying with federal requirements and Executive Orders, and seeks to integrate energy efficiency practices into all aspects of day-to-day operations, from capital construction to staff behaviors, to ensure economic and environmental sustainability. On behalf of the City, we are contacting you to ensure this project complies with applicable authorities under your agency's jurisdiction.

Please review this project with respect to your agency's concerns and provide a response to me. If your agency has concerns and will not issue a clearance, please contact me at your earliest convenience concerning what steps must be taken to address your concerns.

We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Gretchen Norman at 634-1756. Thank you for your attention in this matter.

Sincerely,

Gretchen Norman
Project Manager

April 5, 2016

Mary Flanderka, Statewide Habitat Protection Supervisor
Wyoming Game and Fish Department
5400 Bishop Boulevard
Cheyenne, WY 82006

RE: Identification of Natural Resources at Bill Nye Corridor

Dear Ms. Flanderka:

The enclosed map shows the proposed project area for the Bill Nye Corridor Study. The proposed project area is in Section 4, Township 15 North, Range 73 West, Albany County, Wyoming.

The City of Laramie (the City), Community Development Department is analyzing alternative alignments of Bill Nye Avenue between 3rd and 9th Streets to identify and propose adequate mitigation of any adverse impacts caused by modification to the Corridor. The City will partner with the Wyoming Department of Transportation (WYDOT) and directly affected private property owners in this undertaking.

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We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Gretchen Norman at 634-1756. Thank you for your attention in this matter.

Sincerely,

Gretchen Norman
Project Manager

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006
Phone: (307) 777-4600 Fax: (307) 777-4699
wgfd.wyo.gov

GOVERNOR
MATTHEW H. MEAD

DIRECTOR
SCOTT TALBOTT

COMMISSIONERS
T. CARRIE LITTLE – President
KEITH CULVER – Vice President
MARK ANSELMI
PATRICK CRANK
RICHARD KLOUDA
CHARLES PRICE
DAVID RAEL

April 18, 2016

WER 13809.00
WEST Inc.
Identification of Natural Resources
at Bill Nye Corridor
Albany County

Gretchen Norman
Project Manager
WEST Inc.
415 W 17th Street, Suite 200
Cheyenne, WY 82001

Dear Ms. Norman:

The staff of the Wyoming Game and Fish Department (WGFD) has reviewed the Identification of Natural Resources at Bill Nye Corridor. We offer the following comments for your consideration.

Terrestrial Considerations:

We have no terrestrial wildlife concerns pertaining to the proposed project.

Aquatic Considerations:

To minimize impacts to the aquatic resources of nearby waterways, we recommend the following:

- Accepted best management practices be implemented to ensure that all sediments and other pollutants are contained within the boundaries of the work area. Disturbed areas that are contributing sediment to surface waters as a result of project activities should be promptly re-vegetated to maintain water quality.

- Equipment should be serviced and fueled away from streams and riparian areas. Equipment staging areas should be at least 500 feet from riparian areas.

- Preventing the spread of aquatic invasive species (AIS) is a priority for the State of Wyoming, and in many cases, the intentional or unintentional spread of organisms from one body of water to another would be considered a violation of State statute and

Wyoming Game and Fish Commission Regulation. To prevent the spread of AIS, the following is required:

1. If equipment has been used in a high risk infested water [a water known to contain Dreissenid mussels (zebra/quagga mussels)], the equipment must be inspected by an authorized aquatic invasive species inspector recognized by the state of Wyoming prior to its use in any Wyoming water during all times of year.

2. Any equipment entering the state by land from March through November (regardless of where it was last used), must be inspected by an authorized aquatic invasive species inspector prior to its use in any Wyoming water.

3. If aquatic invasive species are found, the equipment will need to be decontaminated by an authorized aquatic invasive species decontaminator.

4. Any time equipment is moved from one 4th level (8-digit Hydrological Unit Code) watershed to another within Wyoming, the following guidelines are recommended:
   DRAIN: Drain all water from watercraft, gear, equipment, and tanks. Leave wet compartments open to dry.
   CLEAN: Clean all plants, mud, and debris from vehicle, tanks, watercraft, and equipment.
   DRY: Dry everything thoroughly. In Wyoming, we recommend drying for 5 days in summer (June - August); 18 days in Spring (March - May) and Fall (September - November); or 3 days in Winter (December - February) when temperatures are at or below freezing.

5. Any equipment used in a Wyoming water that contains AIS, must be inspected before use in another water. Species currently found in Wyoming waters include New Zealand mudsnail, Asian clam, and curly pondweed. Information on currently affected waters can be found at: http://wgfd.wyo.gov/web2011/Departments/Fishing/pdfs/AIS_WYWATER_MONITOR130005236.pdf.

*A list of high risk infested waters and locations in Wyoming to obtain an AIS inspection can be found at: wgfd.wyo.gov/AIS.

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Rick Huber, Staff Aquatic Biologist, at 307-777-4558.

Sincerely,

Mary Flanderka
Habitat Protection Supervisor

MF/rh/ns

cc: USFWS
Lee Knox, WGFD, Laramie Region
Corey Class, WGFD, Laramie Region
Chris Wichmann, Wyoming Department of Agriculture, Cheyenne
Mike Snigg, WGFD, Laramie Region

April 5, 2016

R. Mark Sattelberg, Field Supervisor
Ecological Services
US Fish & Wildlife Service
5353 Yellowstone Road, Suite 308A
Cheyenne, WY 82009

RE: Identification of Natural Resources at Bill Nye Corridor

Dear Mr. Sattelberg:

The enclosed map shows the proposed project area for the Bill Nye Corridor Study. The proposed project area is in Section 4, Township 15 North, Range 73 West, Albany County, Wyoming.

The City of Laramie (the City), Community Development Department is analyzing alternative alignments of Bill Nye Avenue between 3rd and 9th Streets to identify and propose adequate mitigation of any adverse impacts caused by modification to the Corridor. The City will partner with the Wyoming Department of Transportation (WYDOT) and directly affected private property owners in this undertaking.

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We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Gretchen Norman at 634-1756. Thank you for your attention in this matter.

Sincerely,

Gretchen Norman
Project Manager

ENVIRONMENTAL & STATISTICAL CONSULTANTS
415 W. 17th Street, Suite 200, Cheyenne, WY 82001
Phone: 307-634-1756 • www.west-inc.com • Fax: 307-637-6981

NC

RECEIVED
2016 APR -7 AM 10: 59
US FISH & WILDLIFE SVC
CHEYENNE, WY

April 5, 2016

R. Mark Sattelberg, Field Supervisor
Ecological Services
US Fish & Wildlife Service
5353 Yellowstone Road, Suite 308A
Cheyenne, WY 82009

RE: Identification of Natural Resources at Bill Nye Corridor

Dear Mr. Sattelberg:

The enclosed map shows the proposed project area for the Bill Nye Corridor Study. The

U.S. FISH AND WILDLIFE SERVICE

Based on the information provided, you may consider this project to be in compliance with the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 *et seq.* The project should be reanalyzed by our office if any new information indicates there may be effects to protected species or their habitats.

Date: 4-11-16 Signature: [signature]

Deputy Field Supervisor
U.S. Fish and Wildlife Service / Wyoming ES Office
5353 Yellowstone Road, Suite 308A
Cheyenne, WY 82009
Phone: (307) 772-2374
Fax: (307) 772-2358

WY16CPA0166

CITY OF LARAMIE COUNCIL WORK SESSION April 26, 2016

Agenda Item: Discussion Item

Title: Presentation of the Pavement Management System

Background:

Since 1988 the City has performed annual inspections of the pavement condition throughout the community. The inspection data collected is input into a data base supporting a Pavement Management System (PMS).

> "A **Pavement Management System** is a set of defined procedures for collecting, analyzing, maintaining, and reporting pavement data, to assist decision makers in finding optimum strategies for maintaining pavements in serviceable condition over a given period of time for the least cost."

Pavement management incorporates life cycle costs into a more systematic approach to minor and major road maintenance and reconstruction projects. The needs of the entire network as well as budget projections are considered before projects are executed. Pavement management encompasses the many aspects and tasks needed to maintain a quality pavement inventory, and ensure the overall condition of the road network can be sustained at desired levels.

At the April 26, 2016 City Council Work Session, our consultant, Mr. Ted Borstad, P.E., will present information concerning our PMS and a history of results of annual pavement inspections. Mr. Borstad has also been tasked with inspecting the concrete condition throughout the community. Although these concrete inspections are outside the normal scope of services for a PMS, the data collected does provide valuable information concerning the quality of our curb, gutter and sidewalks. This base line information will be used to help guide us as we develop appropriate concrete replacement policies.

PAVEMENT MAINTENANCE AND CONCRETE FLATWORK

City of Laramie

April 26, 2016

Ted A. Borstad, P.E.

Borstad Consulting Services, LLC

OVERVIEW

- Pavement Management
- Inspections
- Results
- Planning
- Concrete Flatwork

PAVEMENT MANAGEMENT EXPERIENCE

CLIENTS

- CITIES
- COUNTIES
- UNIVERSITIES
- MILITARY BASES
- COMMERCIAL

SERVICES

- TRAINING
- INSPECTIONS
- PLANNING
- DATABASE EVALUATION
- COMPLETE IMPLEMENTATION

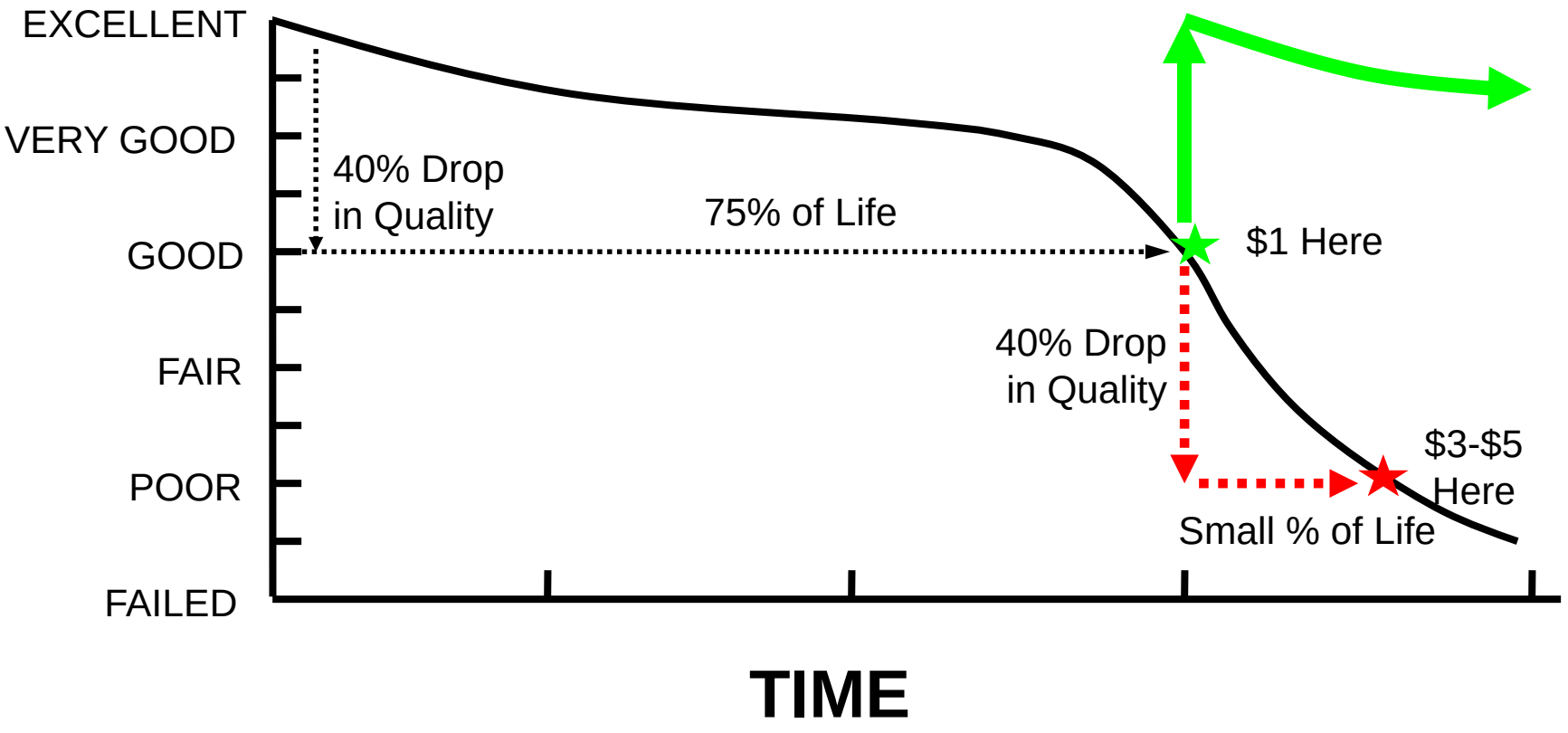
29 YEARS

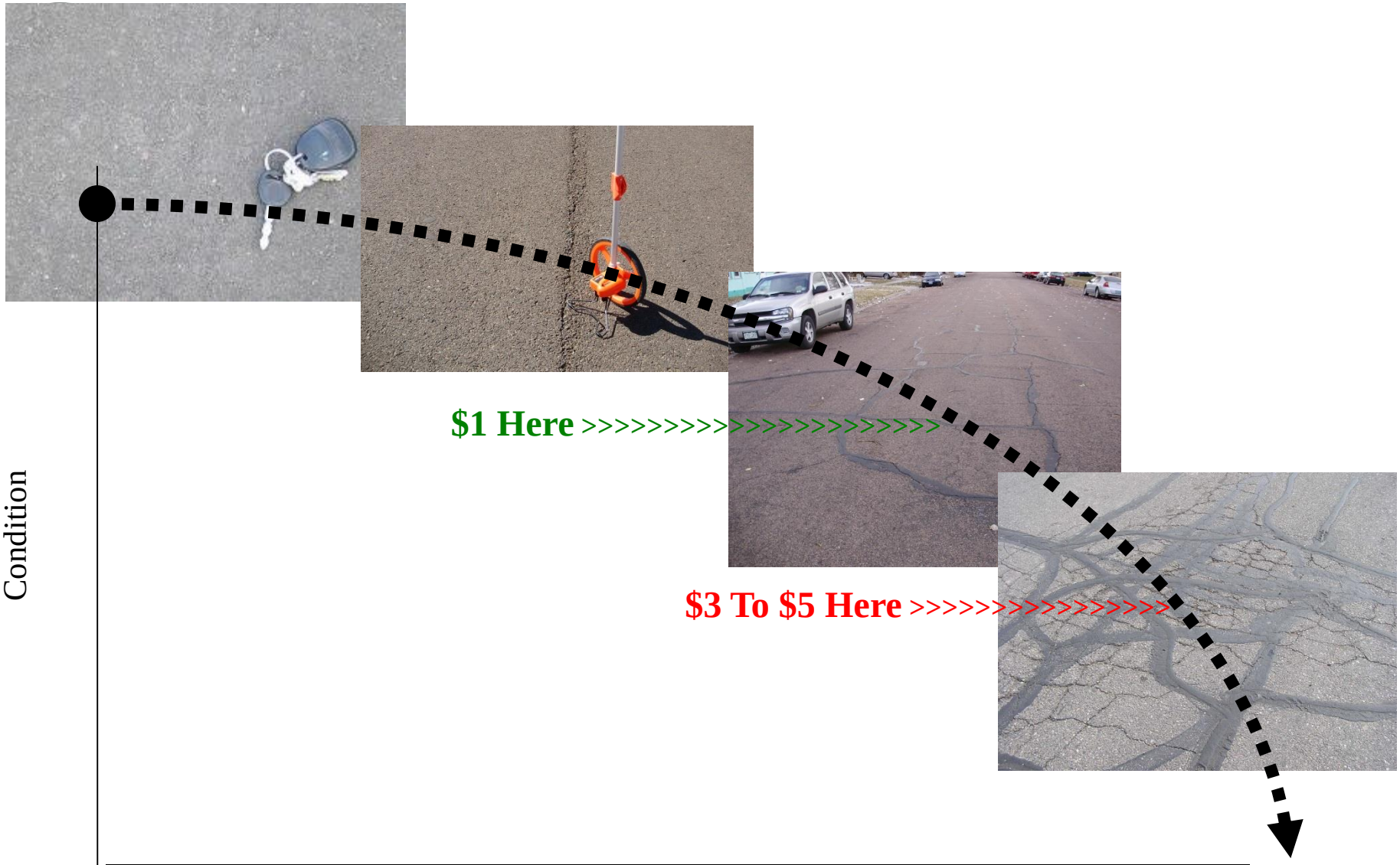
PAVER

- Corps of Engineers Program
- APWA Support
- ASTM Standard
- Roads, Parking
- Asphalt, Concrete, Gravel
- PCI: Pavement Condition Index

Laramie Implemented in ~ 1988

PAVEMENT LIFE CYCLE





Pavement Deterioration

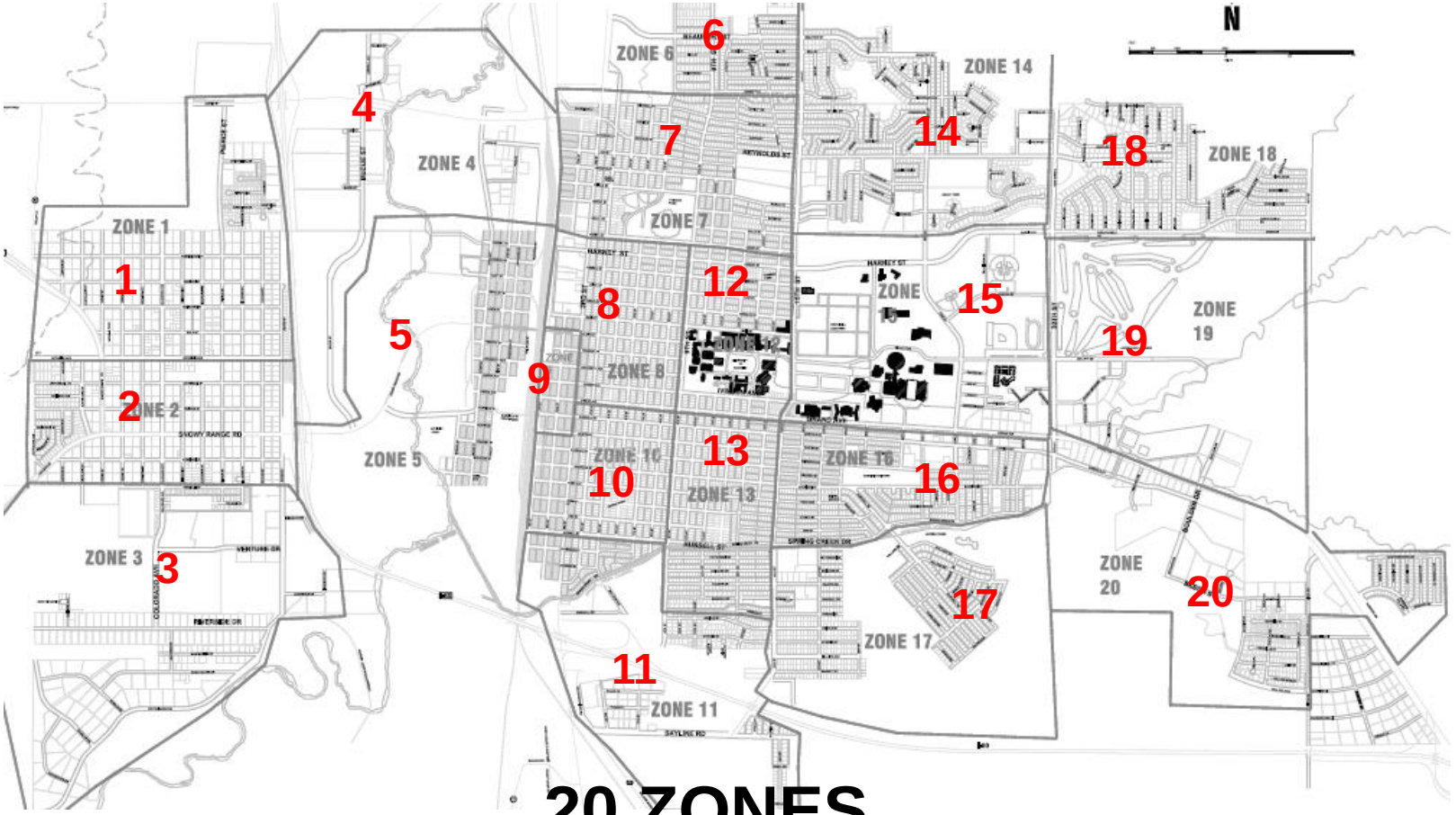
LARAMIE INVESTMENT VALUE

111+ miles of Streets = 25.2 million square feet of pavement

Value at $4-5 per sf

= $101-126 million

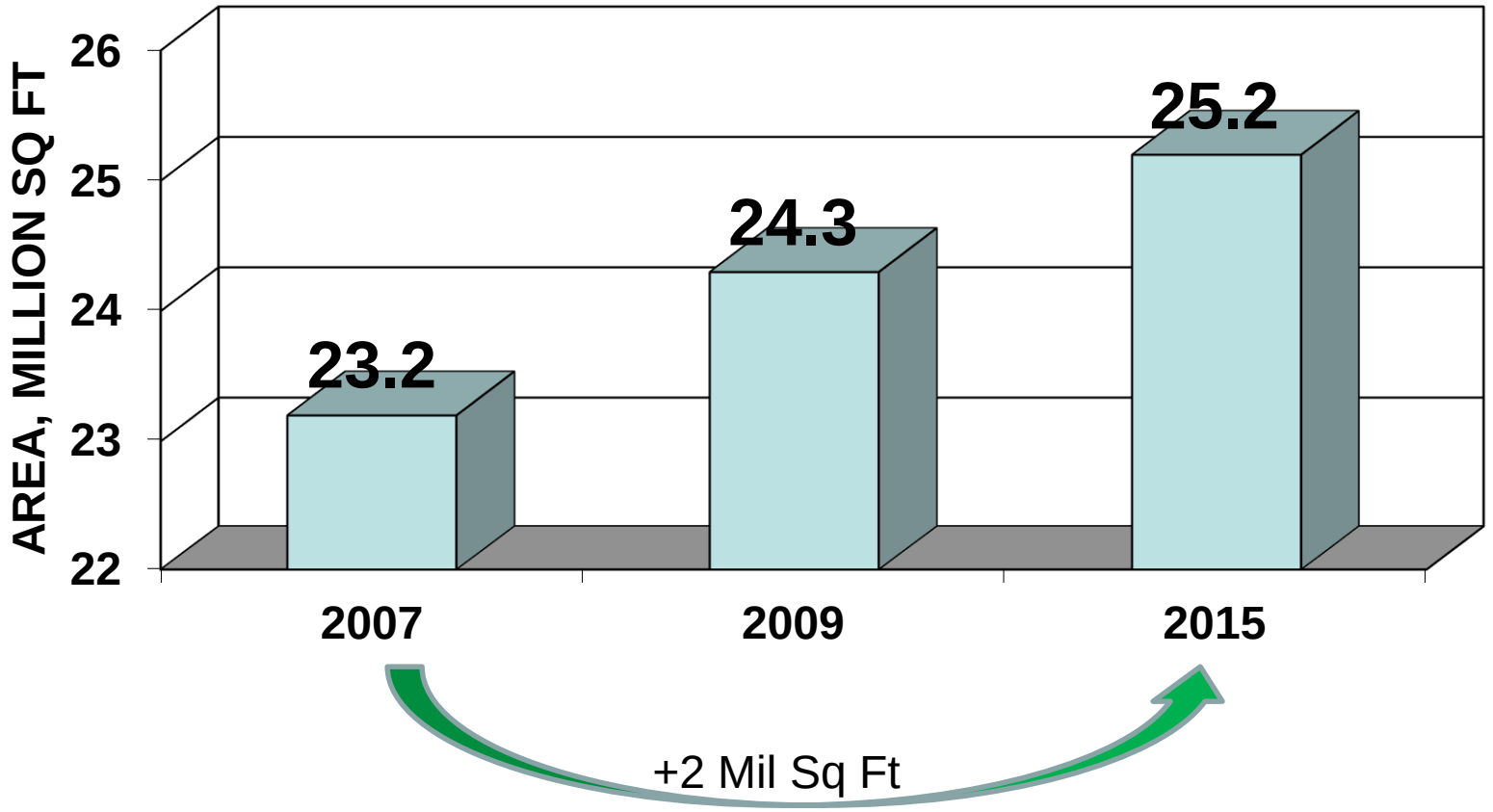
NETWORK



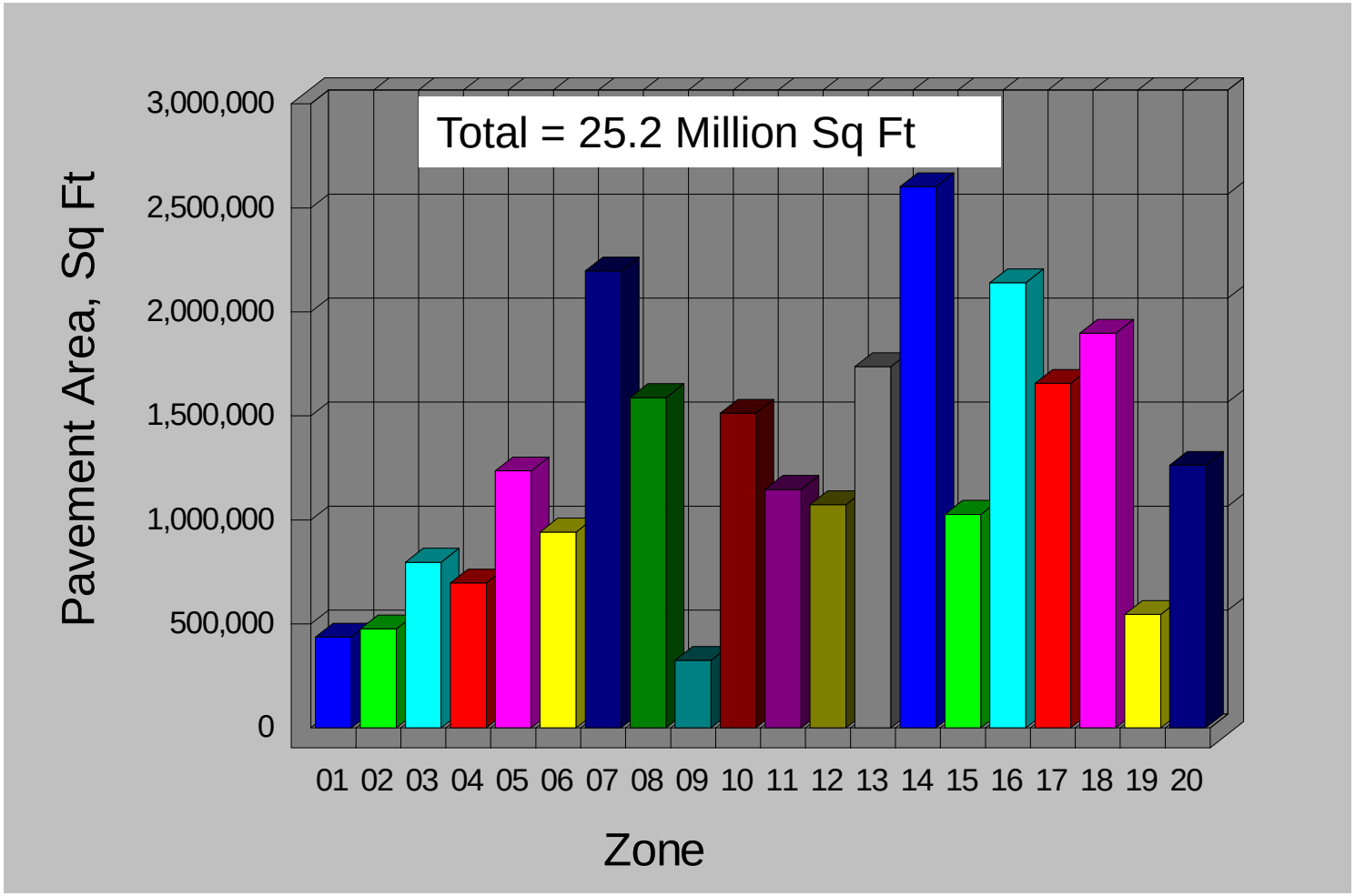
20 ZONES

1550 SECTIONS

PAVEMENT AREA



PAVEMENT AREA BY ZONE



INSPECTIONS

- **Block by Block**
- **Inspect Sample Units**
- **Inspect ½ Streets Annually**

20 ASPHALT DISTRESSES AND 3 SEVERITIES

ALLIGATOR CRACKING – BEECH ST

EDGE CRACKING – RENSHAW ST

DEPRESSION

BLOCK CRA CKING – MITCHELL ST

RUTTING

PAVING JOINT CRACKING

19 CONCRETE DISTRESSES AND 3 SEVERITIES

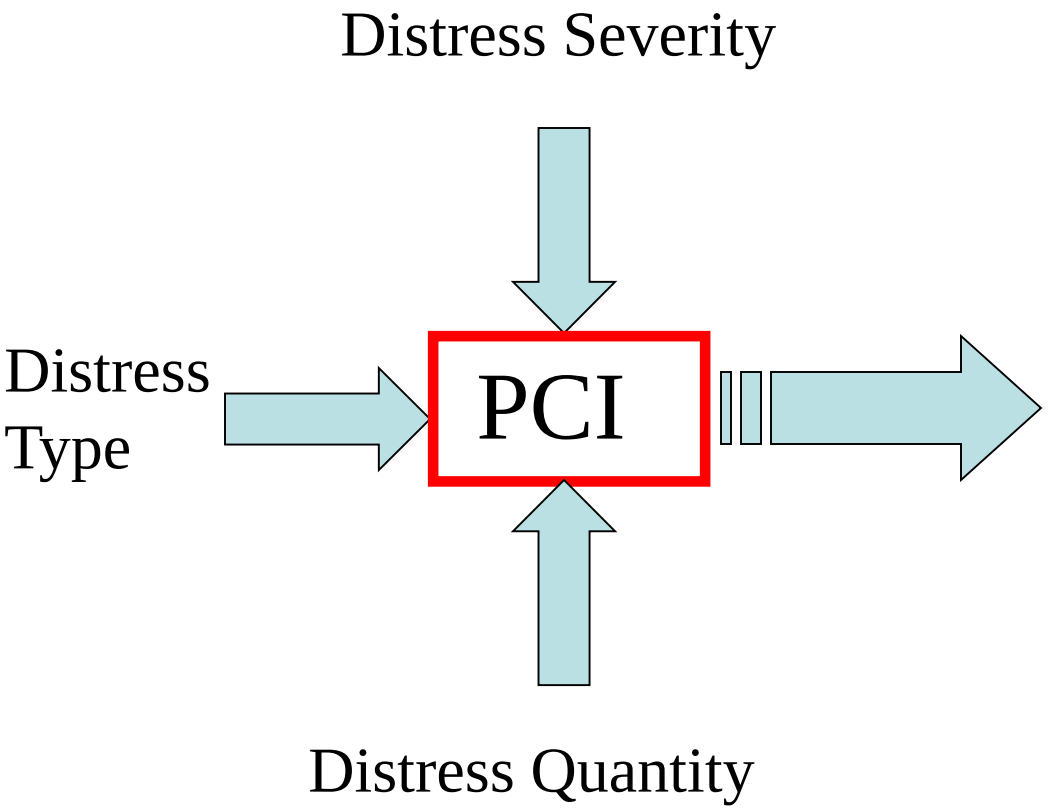
CORNER BREAK– MCCUE ST

DIVIDED SLAB– EXAMPLE

JOINT SPALLING– MCCUE ST

CORNER SPALL – EXAMPLE

PAVEMENT CONDITION INDEX (PCI)



CONDITION	PCI
Very Good	85 to 100
Above Average	70 to 85
Average	55 to 70
Below Average	40 to 55
Poor	0 to 40

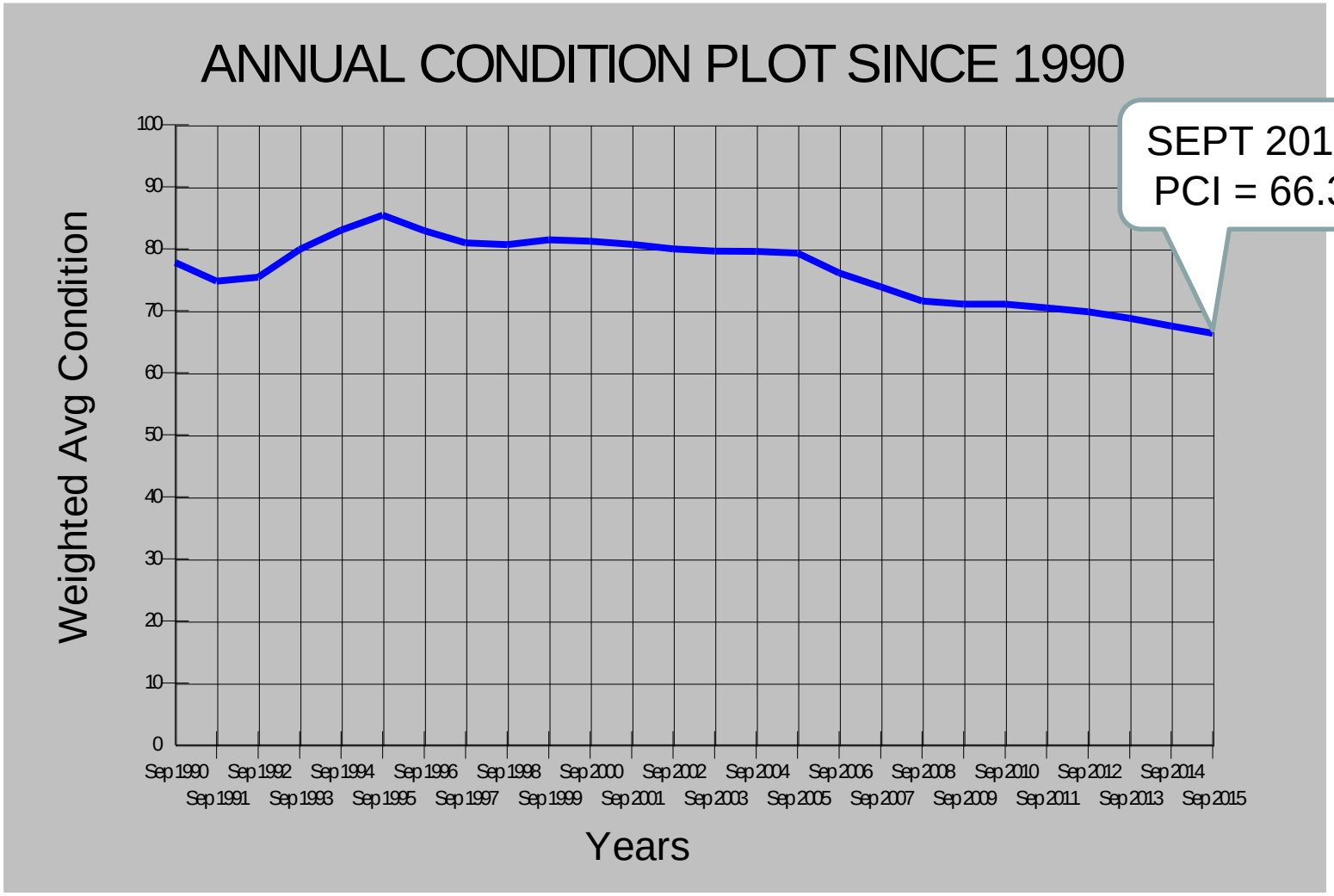
PAVEMENT CONDITION

70.5 (DEC 2009)

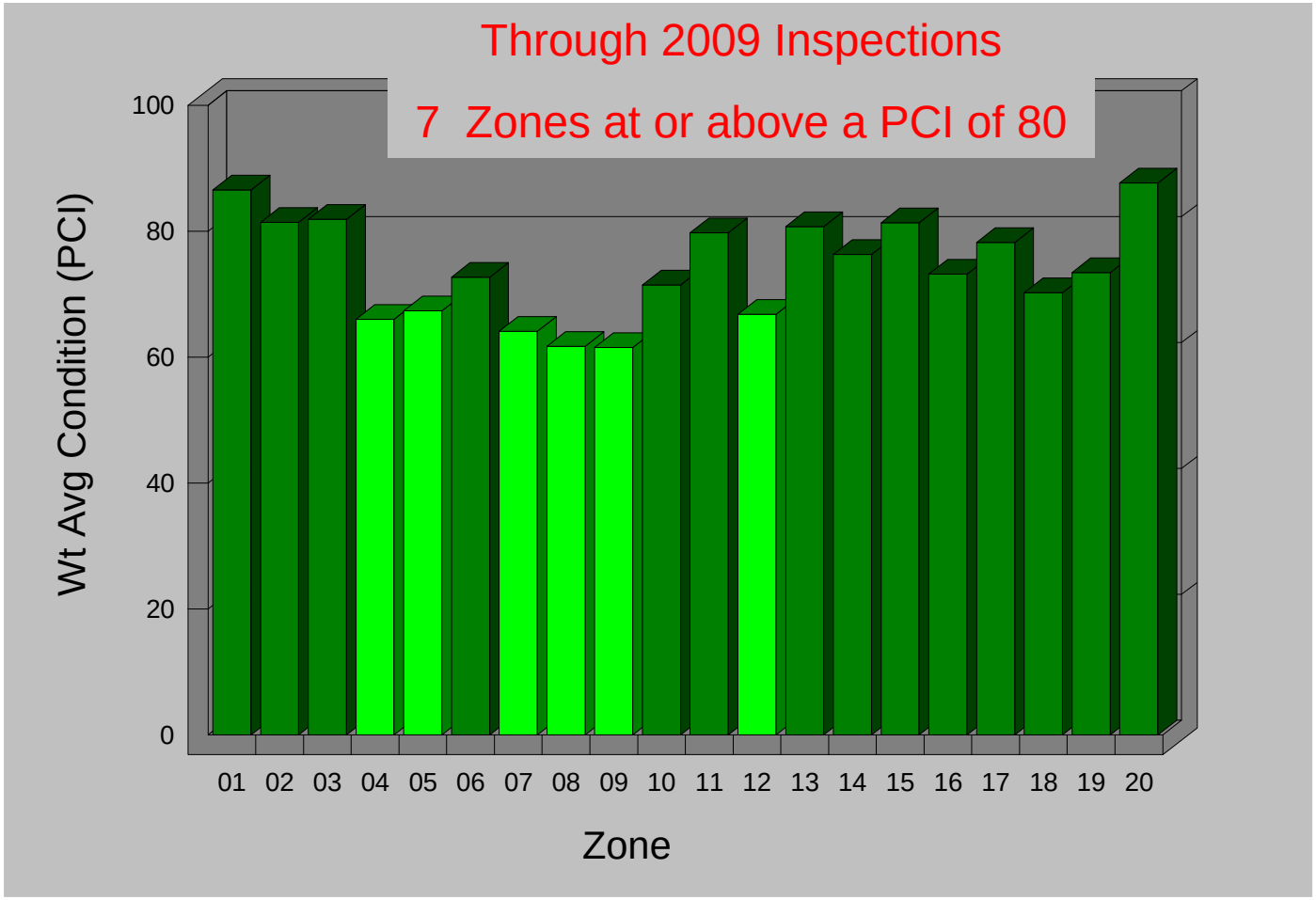
66.3 (SEP 2015)

CATEGORY	PCI RANGE
Very Good	85 to 100
Above Average	70 to 85
Average	55 to 70
Below Average	40 to 55
Poor	0 to 40

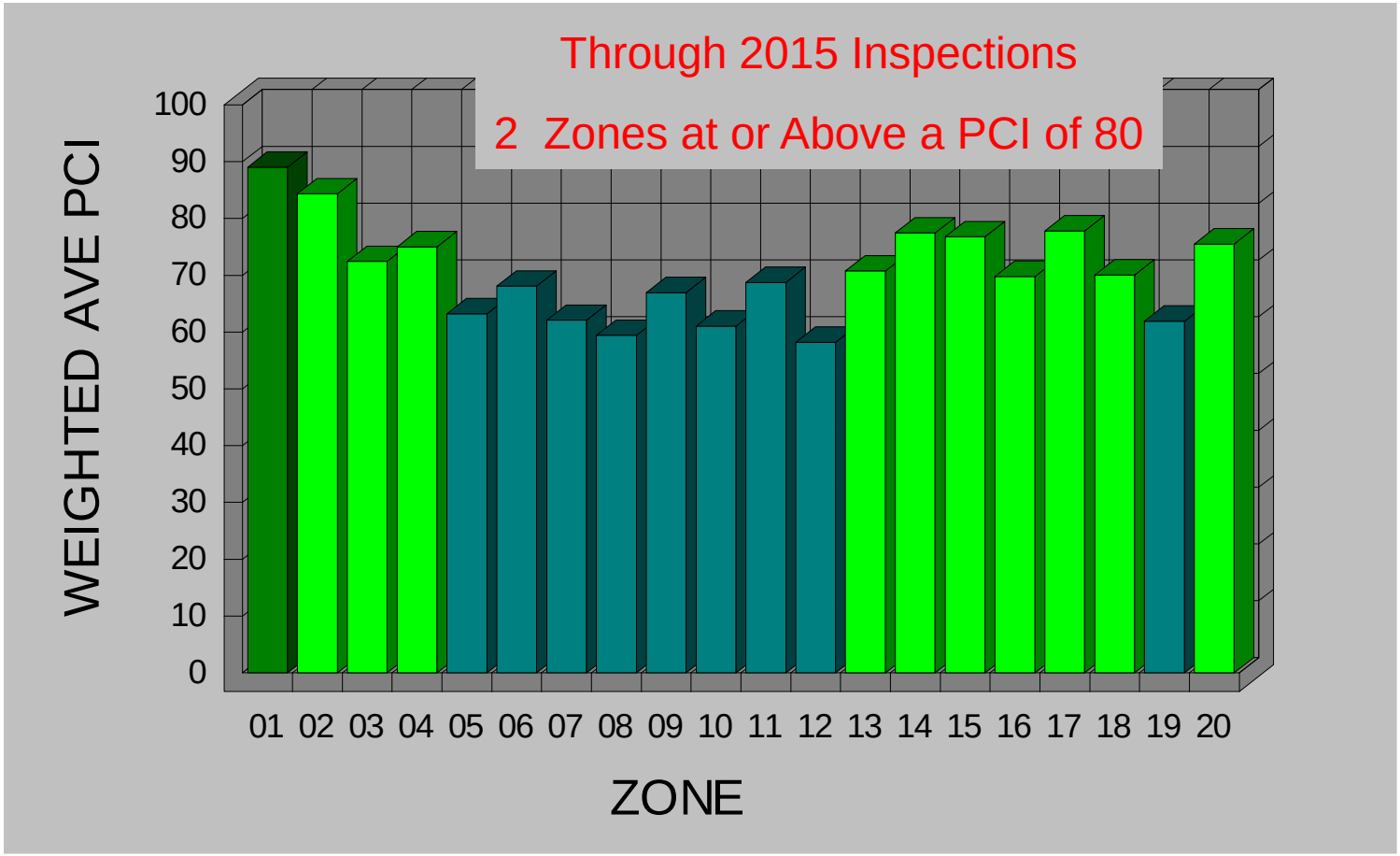
CONDITION PLOT



CONDITION BY ZONE



CONDITION BY ZONE



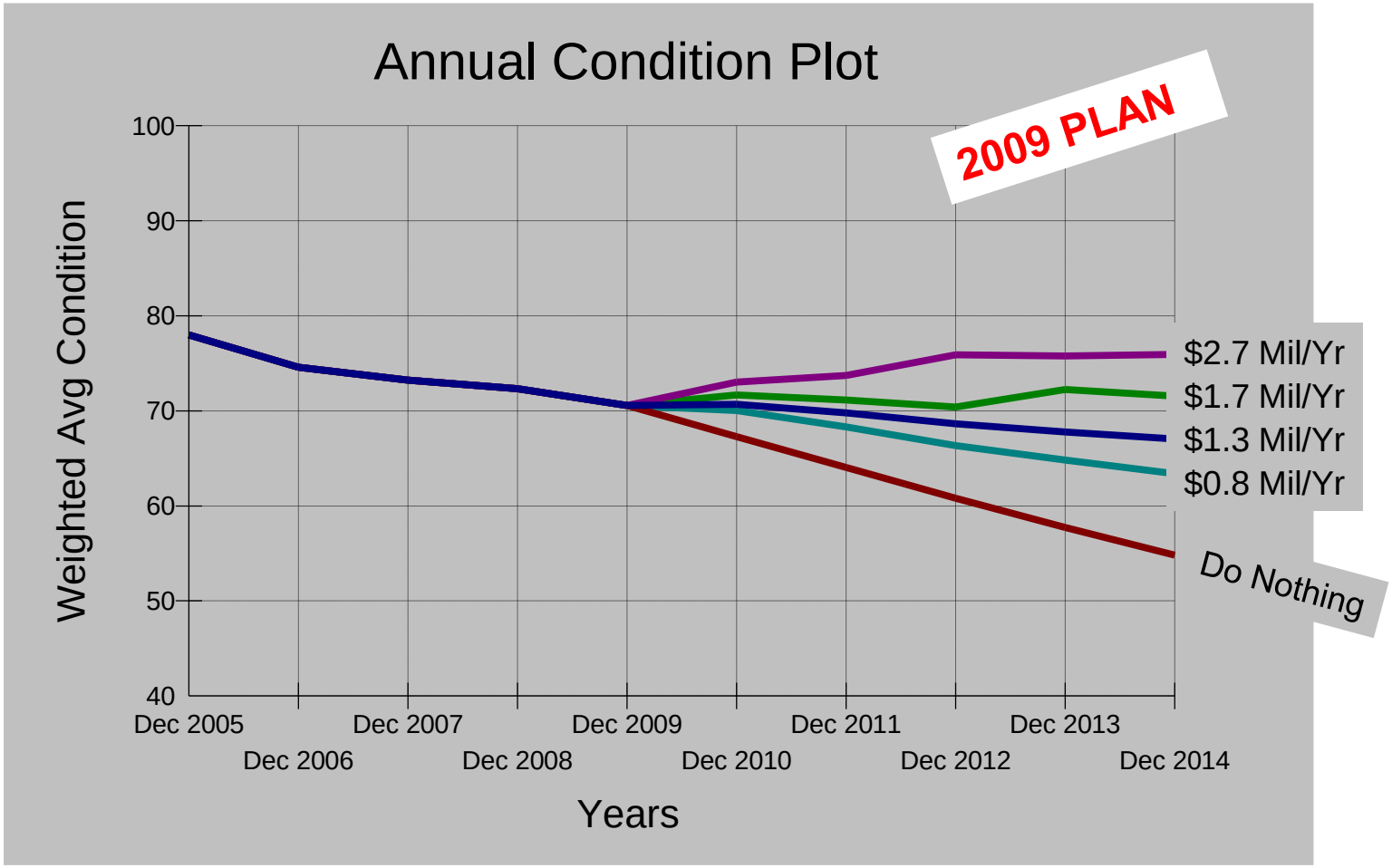
CONDITION TREND

Date	% POOR	% BELOW AVE	% AVERAGE	% ABOVE AVE	% VERY GOOD
PCI Range	0 - 40	40 - 55	55 - 70	70 - 85	85 - 100
2005	3	6	16	28	48
2006	3	9	20	32	36
2007	5	12	24	26	34
2008	5	11	26	27	30
2009	5	15	26	24	30
2010	5	16	25	24	30
2011	5	15	28	25	28
2012	6	13	30	23	28
2013	5	15	29	26	25
2014	8	16	29	20	26
2015	12	16	28	17	27

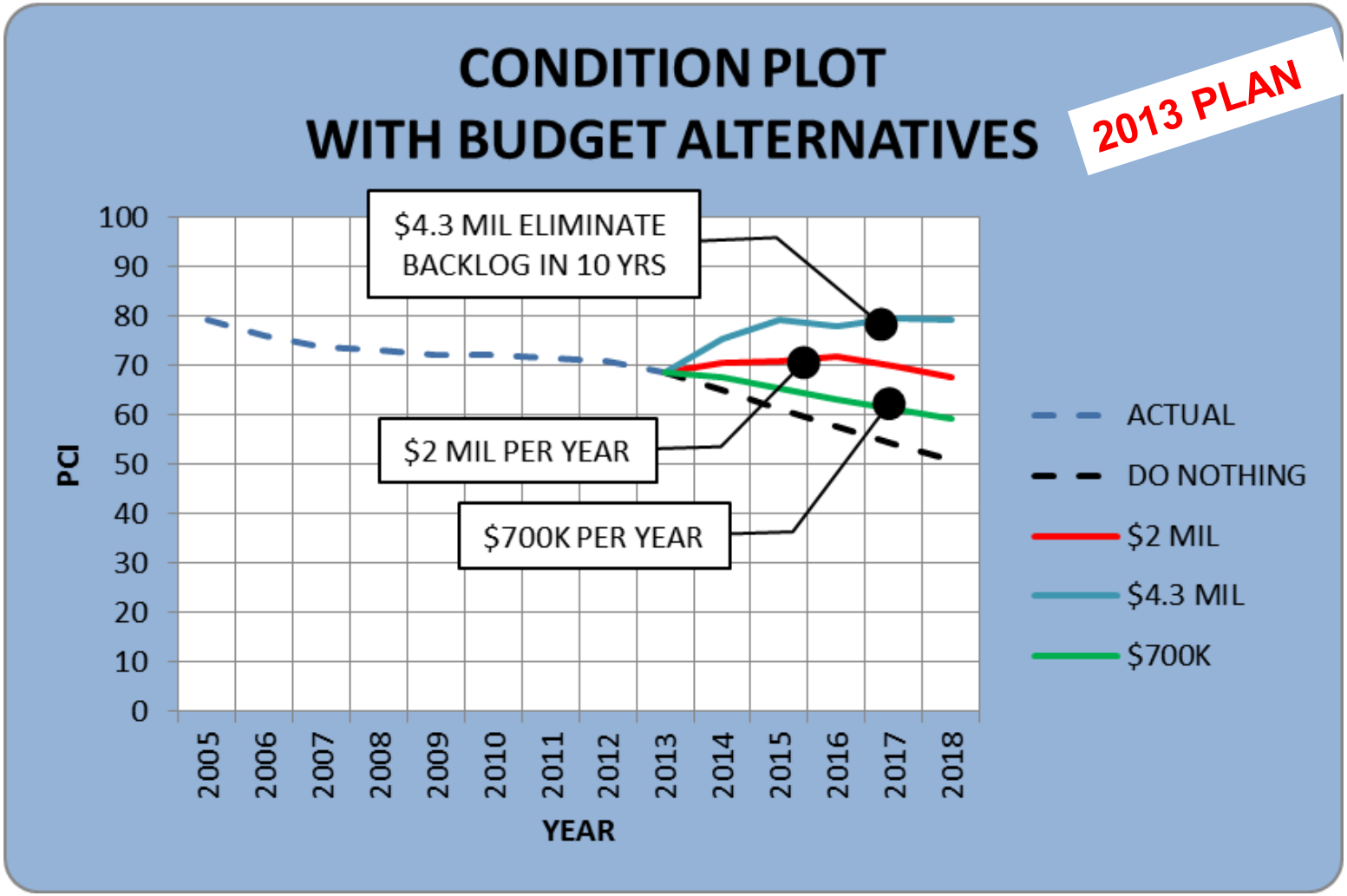
BUDGET OPTIONS

- Limited Budget
- Unlimited Budget
- Stabilize Condition
- Eliminate Backlog
- Variable Budget

COMPARE BUDGETS



COMPARE BUDGETS



FUNDING ALLOCATION

- **50-80% OF THE BUDGET IS SPENT ON PAVEMENT IN GOOD CONDITION**

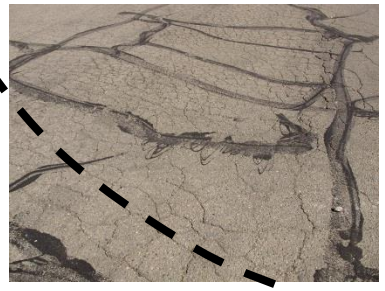
VERY GOOD

GOOD

FAIR

POOR

- **20-50% OF THE BUDGET IS SPENT ON PAVEMENTS IN POOR CONDITION**



SUMMARY-STREETS

Set Budget vs. Condition

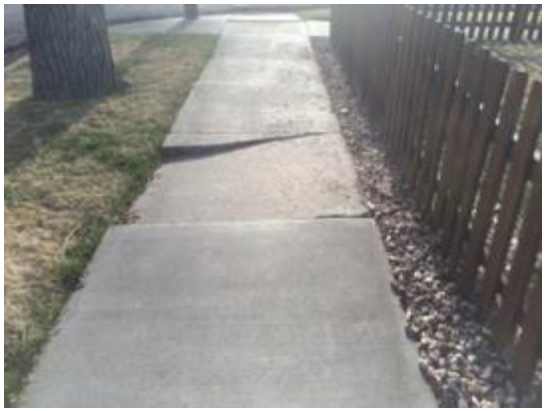
Continue Regular Inspections

Maintenance Strategies

Implementation

CONCRETE CONDITION

CURB/GUTTER



SIDEWALK

HANDICAP RAMP

CROSS PAN

SIDEWALK RATINGS

PRIORITY #1

PRIORITY #2

PRIORITY #3

GOOD SIDEWALK
AND CURB/GUTTER

CONCRETE SUMMARY OVERALL

OVERALL			#1 Priority for Replacement		#2 Priority for Replacement		#3 Priority for Replacement		Total 1+2+3	
	Unit	Total Quantity	Quantity	Per Cent of Total	Quantity	Per Cent of Total	Quantity	Per Cent of Total	Quantity	Per Cent of Total
Curb & Gutter	Lin Ft	466,203	23,187	5.0%	45,965	9.9%	71,350	15.3%	140,502	30.1%
Sidewalk	Sq Ft	2,139,457	112,449	5.3%	190,268	8.9%	195,403	9.1%	498,119	23.3%
Concrete Pans	Sq Ft	NA	4,770		4,380		15,520		24,670	

CONCRETE SUMMARY
ZONE 12

ZONE 12			#1 Priority for Replacement		#2 Priority for Replacement		#3 Priority for Replacement		Total 1+2+3	
	Unit	Total Quantity	Quantity	Per Cent of Total	Quantity	Per Cent of Total	Quantity	Per Cent of Total	Quantity	Per Cent of Total
Curb & Gutter	Lin Ft	35,436	3,640	10.3%	3,861	10.9%	5,699	16.1%	13,200	37.3%
Sidewalk	Sq Ft	171,053	13,746	8.0%	18,550	10.8%	19,767	11.6%	52,063	30.4%
Concrete Pans	Sq Ft	NA	480		270		240		990	

ASPHALT HIGHER THAN CURB

- 48% of Streets Inspected in 2015 Have Asphalt Higher than the Gutter

SUMMARY-CONCRETE

THANK YOU

Ted A. Borstad, P.E.

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TBorstad@aol.com

CITY OF LARAMIE COUNCIL WORK SESSION April 26, 2016

Agenda Item: Presentation

Title: Laramie Public Art Coalition Update

Recommended Council MOTION:
N/A

Administrative or Policy Goal:

Objective: Community Enhancement-Beautification & Planning

Background:

In June of 2015, the Community Arts Plan Advisory Committee presented the Public Art Plan to the Laramie City Council. Since that time, the Committee has continued meeting to begin the implementation of the Plan and to form an organization that will carry the work forward.

The Laramie Public Art Coalition is here this evening to present the status of the work thus far.

Legal/Statutory Authority:

N/A

BUDGET/FISCAL INFORMATION:

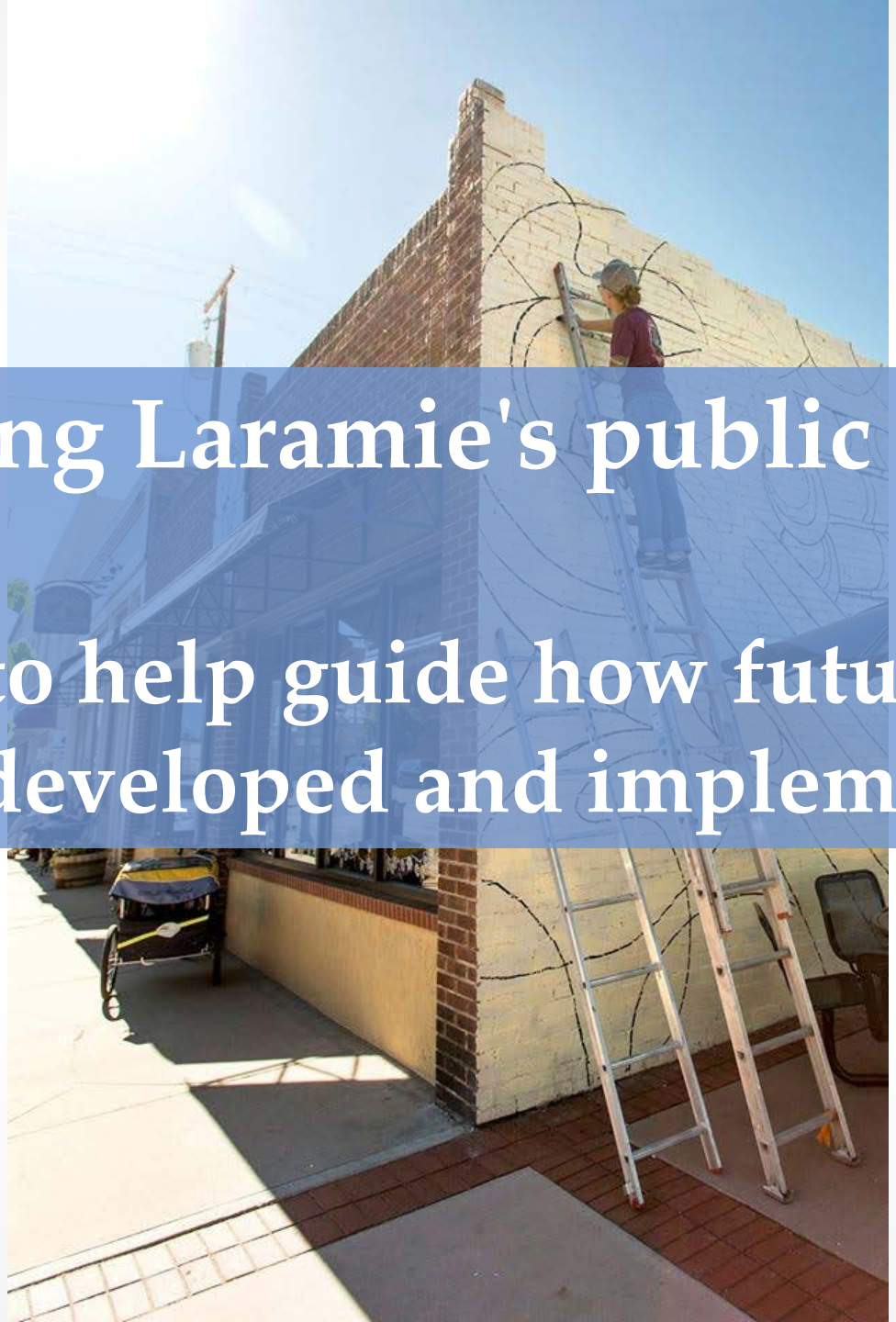
N/A

Responsible Staff:

Jodi Guerin, Recreation Manager

Attachments:
Presentation

Laramie Public Art Coalition



Presenting Laramie's public art plan!

A tool to help guide how future public art is developed and implemented.

What the Plan is

- A vision with goals for public art in the community
- Examples of different types of public art projects
- Suggestions for public art locations
- Procedures for artist selection, design development, design review & project management
- Strategies for funding public art
- Ideas for educational programs
- Sample documents and policies

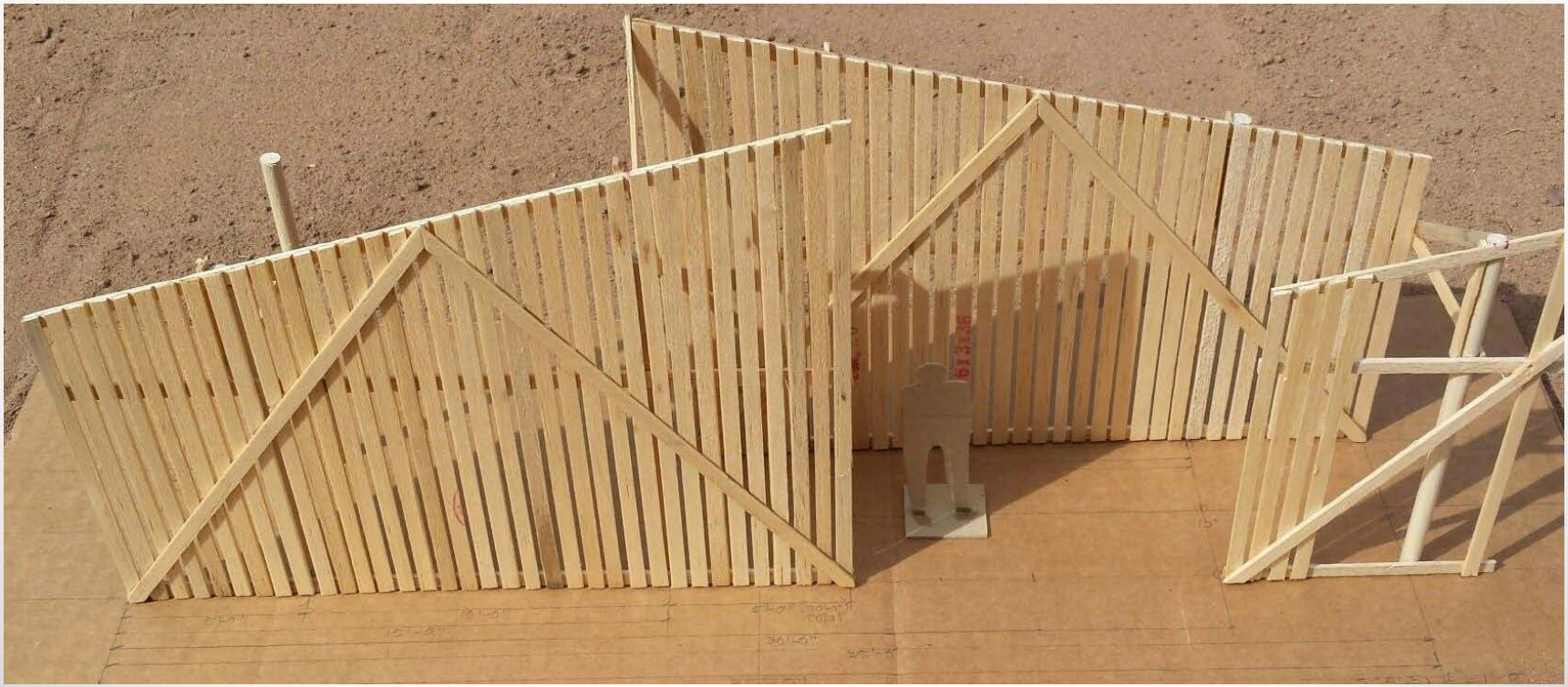
LPAC is WORKING ON

- Bylaws
- Policies and Procedures
- Advisory Committee Development
- Artist Roster
- Securing Funds
- Crowdfunding Training
- Establishing & Expanding Partnerships
- Public Listening & Brainstorming Sessions—5x5 workshop
- Support for Local Art Events
- Public Art Inventory

CURRENT PROJECTS

The Laramie Beautification Committee, through a call process established by the Laramie Art Plan, commissioned Laramie artist Stan Dolega to build a bold, 200' long, artwork in the northwest quadrant of the I-80 and 3rd Street interchange. The project is located on private property and was 95% funded by private gifts.

PENUMBRA



LOVE MOTEL FOR INSECTS

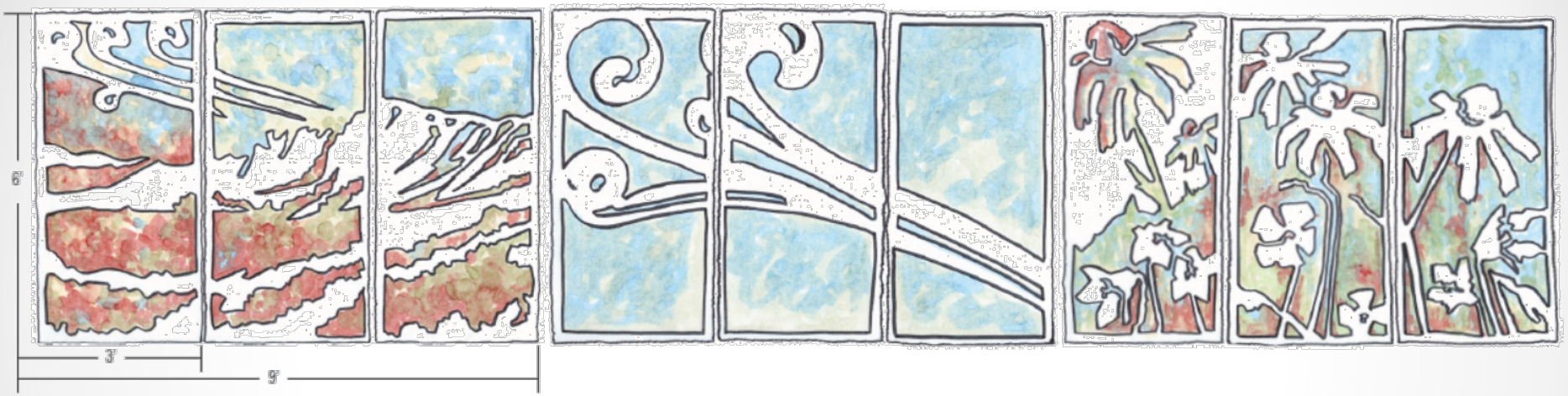
LARAMIE MURAL PROJECT

Public Art Transforming Third Street

Our vision to use arts and culture to enhance the economic and social vitality of the Third Street corridor as it runs through downtown Laramie.

https://youtu.be/UFzYY-tmwIk

Cirrus Sky – integrated art



• Mountain Range Triptych

The Medicine Bow Mountains are a mountain range in the Rocky Mountains that extend for 100-mile (160 km) from northern Colorado into southern Wyoming. The northern extent of this range is the sub-range the Snowy Range.

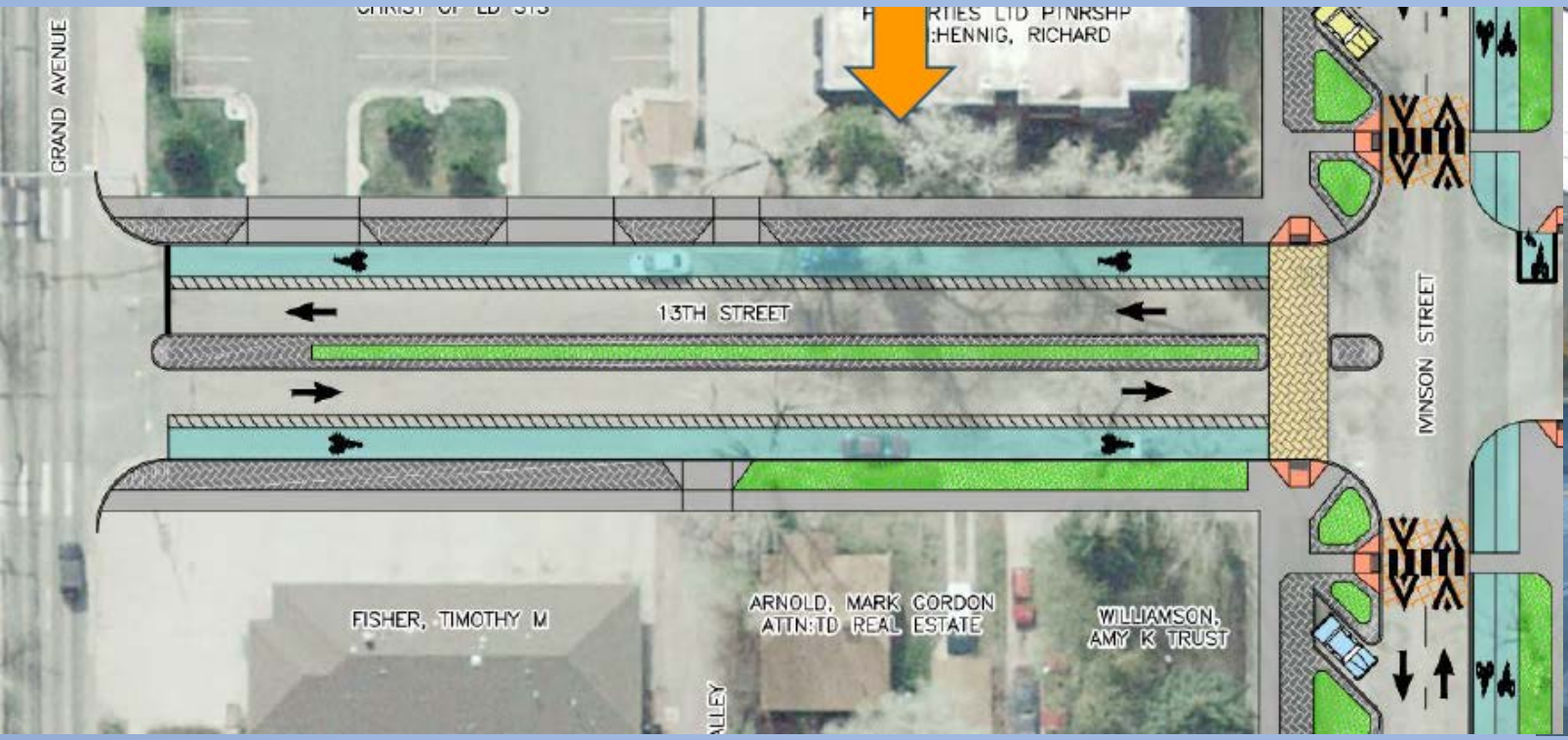
• Cirrus Cloud Triptych

The most common variation of high level clouds are cirrus clouds. Cirrus are thin, whispy clouds composed of ice crystals that originate from the freezing of supercooled water droplets and exist where temperatures are below -38 degrees Celsius. Cirrus generally occur in fair weather and move from west to east, pointing in the direction of the prevailing winds at their elevation.

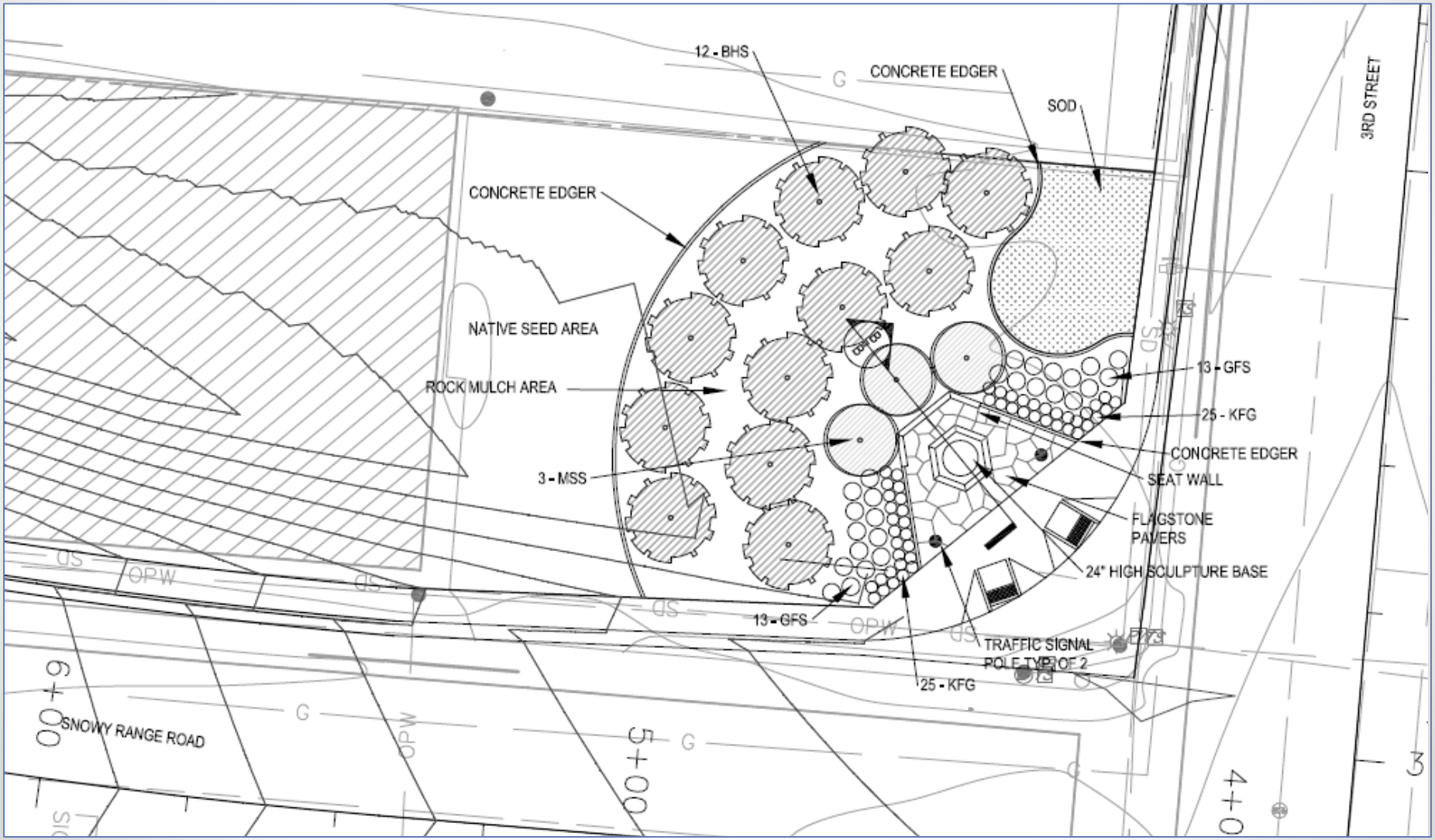
• Native Vegetation Triptych

Referencing colorful flowers that may bee seen hiking in southern Wyoming and that may also be used in the reseeding along the Cirrus Sky Tech Park Trail: BLANKET FLOWER, Gaillardia × grandi ora Height: 12-18" Width: 12-18", LEWIS' FLAX Linum lewisii Pursh Height 12-18" Width ~ 18" and HAREBELLS Campanula rotundifolia L. Height: 11-14" Width: 8-12".

IVINSON AVE. – integrated art



HARNEY – integrated art



FUNDRAISING

- ArtPlace America grant
- Wyoming Art Council grant
- Wyoming Cultural Trust Fund
- Laramie Beautification
- Pete Lien and Associates
- Guthrie Family Foundation
- Public Donations
- The Local Crowd
- Online Donations through WYCF

The Future of Public Art