Written materials relating to an item on this agenda that are distributed to the legislative bodies within 72 hours before the item is to be considered at its regularly scheduled meeting will be made available for public inspection at the City Clerk's Office, 300 West Third Street 4th Floor during customary business hours. Agenda reports are also on the City of Oxnard web site at www.oxnard.org.

CITY OF OXNARD CALIFORNIA

AGENDA
OXNARD CITY COUNCIL
PUBLIC WORKS AND TRANSPORTATION COMMITTEE

Council Chambers, 305 West Third Street
March 23, 2021
Regular Meeting - 8:30 to 10:00 PM
(TEMPORARY MEETING TIME CHANGE)

This meeting is held pursuant to the State Emergency Services Act, the Governor's Emergency Declaration, and Governor's Executive Order N-29-20 to allow members of the City Council or staff to participate via teleconference.

As a precautionary measure to help slow the spread of COVID-19, the City Council facilities are temporarily closed to the public. The public is encouraged to view the meeting from home on the City's website at Oxnard.org/city-meetings, Spectrum channel 10, Frontier channel 35, or YouTube at Youtube.com/oxnardnews. Video recordings are typically available online immediately following the meeting. *Please see the link for the Measure M pre-recorded presentation video for each agenda item below.

The public may provide comments to the City Council via email at cityclerk@oxnard.org no later than 2:00 p.m. on the day of the meeting. Please identify the committee name, meeting date, and agenda item in the email Subject line.

A telephone option for public comments is also available at this time. Requests to speak must be submitted no later than 2:00 p.m. on the day of the meeting. Use the form on the city's website to submit your request: Oxnard.org/city-meetings, or call the City Clerk's Office at (805) 385-7803, or email your request to cityclerk@oxnard.org.

*The City has filed pre-election and post-election lawsuits regarding the validity of Measure M. The judge has not yet ruled on the legal sufficiency of Measure M.

A. ROLL CALL, POSTING OF AGENDA, FLAG SALUTE

B. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA

At this time, the legislative body will consider public comments for a maximum of thirty minutes. A person may address the legislative body only on matters not appearing on the agenda and within the subject matter jurisdiction of the legislative body. Speaker requests shall be submitted as set forth on the first page of this agenda. Speakers are limited to three minutes. If the allotted 30 minute time period expires before all speakers have had the opportunity to speak, the remaining speakers will be given an opportunity to speak prior to adjournment of the meeting. The legislative body cannot enter into a detailed discussion or take action on any items presented during public comments at this time. Such items may only be referred to the City Manager/Executive Director/Secretary for administrative action or scheduled on a subsequent agenda for discussion. Persons wishing to speak on public hearing items should do so at the time of the hearing.

C. CONSENT AGENDA

In compliance with the Americans with Disabilities Act, if you require special assistance to participate in a meeting, please contact the City Clerk's Office at 385-7803. Notice at least 72 hours prior to the meeting will enable the City to reasonably arrange for your accessibility to the meeting.

Agenda Item time estimates: (Presentation / Committee Discussion / Public Comment)

1. City Clerk Department

   SUBJECT: Approval of Minutes.

   RECOMMENDATION: That the Public Works and Transportation Committee approve the minutes of the January 12, 2021 regular meeting as presented.

   Contact: Rose Chaparro, (805) 385-7805

D. REPORTS

1. Public Works Department

   SUBJECT: Senate Bill 1 (SB1) Local Streets and Road Maintenance and Rehabilitation Account (RMRA) Funding and Project List for Fiscal Year 2021-22. (0/5/5)

   RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council adopt a resolution to:

   1. Adopt the Fiscal Year 2021-22 project list of Senate Bill 1 (SB1) proposed projects which will be funded in part or solely with Road Maintenance and Rehabilitation Account revenues; and
   2. Authorize the City Manager to take whatever actions are necessary and appropriate to carry out the purpose and intent of the resolution.

   Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/S5qY0Yy5H5s

   Contact: Tatiana Arnaout, (805) 385-8341

2. Public Works Department

   SUBJECT: Railroad Quiet Zone Establishment. (0/10/10)

   RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council receive and file a report on the Federal Railroad Administration's Railroad Quiet Zone process and potential application within the City of Oxnard.

   Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/dmWvQVWdwWM

   Contact: Craig Beck, (805) 385-8055

3. Community Development Department

   SUBJECT: Master License Agreement For Wireless Installation on Municipal Facilities. (0/10/10)

   RECOMMENDATION: That the Public Works and Transportation Committee:

   1. Receive a summary report on a draft Master License Agreement (MLA) for Wireless Installation on Municipal Facilities; and

   2. Provide input on the draft MLA for Wireless Installation on Municipal Facilities.

   Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/YgHBwna3a1I

   Contact: Vyto Adomaitis, (805) 385-7868

E. ITEMS FOR FUTURE AGENDAS

F. ADJOURNMENT

M I N U T E S
OXNARD CITY COUNCIL
PUBLIC WORKS COMMITTEE
Regular Meeting
JANUARY 12, 2021

A. ROLL CALL, POSTING OF AGENDA, FLAG SALUTE

At 8:33 p.m., Chair Bert Perello called to order the regular meeting of the Oxnard City Council Public Works Committee in the City Hall Council Chambers at 305 W. Third Street, Oxnard, California. The City Clerk called the roll and announced the posting of the agenda. Chair Bert Perello and Member Vianey Lopez were present via videoconference. Member John Zaragoza was present in person.

Staff members present were Paul Earley, Assistant City Attorney; Alex Nguyen, City Manager; and Rose Chaparro, City Clerk.
Staff members that participated via videoconference were Rosemarie Gaglione, Public Works Director; Brian Yanez, Assistant Public Works Director; Steve Howlett, Assistant Public Works Director; Tatiana Arnaout, City Engineer; Juanita Guzman, Administrative Services Manager; Todd Housely, Grant Dunne, Jan Hauser, Luis Ortega, Jeri Cooper, and Adam Smith.

B. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA

Public comments received by Pat Brown and Gabriel Teran.

C. CONSENT AGENDA

City Clerk Department

1. SUBJECT: Approval of Minutes.

   RECOMMENDATION: That the Public Works Committee approve the minutes of the December 8, 2020 regular meeting as presented.

It was moved by Member Lopez, seconded by Member Perello, to approve the minutes as presented. VOTE: Perello, Lopez, and Zaragoza voted in favor; the motion carried 3-0.

D. REPORTS

1. Public Works Department

   SUBJECT: Approval of Fourth Amendment with NBS Government Finance Group for Assessment District Consulting Services.

   RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council authorize the City Manager to:

   1. Execute the Fourth Amendment to Agreement No. A-7950 with NBS

DRAFT

Government Finance Group (NBS) in the amount of $113,000 for a total not-to-exceed amount of $1,123,765.42 to provide construction costs reimbursement and consulting services for Community Facilities District No. 2018-01 (Wagon Wheel); and

2. Approve a budget appropriation to recognize the developer's fund deposits and expenditures for $113,000 from the Wagon Wheel Community Facility District 2018-01 fund.

Rosemarie Gaglione, Public Works Director, gave a report.
No public comments were received.
Discussion ensued among the Committee and staff.

It was moved by Member Zaragoza, seconded by Member Lopez, to approve the recommended action as presented. VOTE: Perello, Lopez, and Zaragoza voted in favor; the motion carried 3-0.

2. Public Works Department

SUBJECT: Agreement with Waste Management of California, Inc. for Solid Waste Disposal.

RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute Agreement A-8280 with Waste Management of California, Inc. for a five year term from February 2, 2021 through February 1, 2026 for solid waste disposal at the Simi Valley Landfill from the Del Norte Regional Recycling and Transfer Station.

Rosemarie Gaglione, Public Works Director, gave a report.
Public comments were received by Chris Theisen, Robert N. Kwong, Tina Rivera, Richard Jones, and Michael Castro.
Discussion ensued among the Committee and staff.

It was moved by Member Zaragoza, seconded by Member Lopez, to approve the recommended action as presented. VOTE: Perello, Lopez, and Zaragoza voted in favor; the motion carried 3-0.

3. Public Works Department

SUBJECT: Solenis LLC, Purchase Order for Supply and Delivery of Anionic Polymer.

RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute Purchase Order with Solenis LLC, in the amount not to exceed $450,000 for a three-year term ending June 30, 2024, for supply and delivery of anionic polymer to the Oxnard Wastewater Treatment Plant.

Rosemarie Gaglione, Public Works Director, gave a report.
No public comments were received.
Discussion ensued among the Committee and staff.

DRAFT

It was moved by Member Perello, seconded by Member Zaragoza, to approve the recommended action as presented. VOTE: Perello, Lopez, and Zaragoza voted in favor; the motion carried 3-0.

E. ITEMS FOR FUTURE AGENDAS

No requests were made.

F. ADJOURNMENT

There being no further business on the agenda, and without objection, Chair Perello adjourned the meeting at 9:00 p.m.

ROSE CHAPARRO City Clerk	BERT PERELLO Chair

DRAFT

PUBLIC WORKS AND TRANSPORTATION COMMITTEE
AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.1

DATE: March 23, 2021

TO: Public Works and Transportation Committee

FROM: Tatiana Arnaout, City Engineer, (805) 385-8341, tatiana.arnaout@oxnard.org

SUBJECT: Senate Bill 1 (SB1) Local Streets and Road Maintenance and Rehabilitation Account (RMRA) Funding and Project List for Fiscal Year 2021-22. (0/5/5)

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council adopt a resolution to:

1. Adopt the Fiscal Year 2021-22 project list of Senate Bill 1 (SB1) proposed projects which will be funded in part or solely with Road Maintenance and Rehabilitation Account revenues; and
2. Authorize the City Manager to take whatever actions are necessary and appropriate to carry out the purpose and intent of the resolution.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/S5qY0Yy5H5s

BACKGROUND

In 2017, the Governor approved Senate Bill 1 (SB 1) creating the Road Maintenance and Rehabilitation Program, which is authorized in Chapter 5, Statutes of 2017. The SB 1 statutes also created the Road Maintenance and Rehabilitation Account (RMRA). The purpose of this funding is to provide an estimated $52.4 billion in revenue Statewide over ten years.

State Reporting Guidelines as described in State Highway Code 2034(a)(1) require that local jurisdictions provide the California Transportation Commission (CTC) with an annual resolution identifying projects that may utilize RMRA. The Resolution should include the project title, description, location, schedule, and estimated useful life for each project. The resolution must also include projects previously listed that may continue to utilize prior RMRA in Fiscal Year 2021-22. The City will also submit annual reporting of expenditures, including additions or omissions to prior project lists, which is allowable through the CTC and State Guidelines.

Since RMRA began, the City has completed nearly 100 lane miles of resurfacing projects utilizing RMRA. Capital projects included Auto Center Commercial Neighborhood, Vineyard Avenue Resurfacing from Oxnard Boulevard to Gonzales Drive, and Thin Maintenance Overlay Phase II on multiple streets Citywide. City Streets Division also performed general roadway maintenance including crack filling and pothole repairs on roadways throughout the City.

CIP Reference: 2020 - 2025 Five-Year Capital Improvement Program

Rice Avenue Commercial Area Neighborhood Street Resurfacing – Page 172. (CIP 2021-2026: Neighborhood Street Resurfacing)
East Gonzales Road Street Resurfacing - Page 130. (CIP 2021-2026: Arterial Street Resurfacing)
West Gonzales Road Street Resurfacing - Page 197. (CIP 2021-2026: Arterial Street Resurfacing)
Teal Club Road Street Resurfacing - Page 186. (CIP 2021-2026: Arterial Street Resurfacing)

DISCUSSION

For Fiscal Year 2021-22, the State estimates that the City will receive $4,102,020 of new RMRA (Fund 185). Staff recommends that City Council adopt a Resolution proposing the following projects utilize the new apportionment as well as the accumulated RMRA balance of $4,898,416, for a total amount of $9,000,436. The following locations are subject to change:

Project - Location Map and Street Names Attached	RMRA Funding
Neighborhood Street Resurfacing	$3,800,000
Public Works Road & Signal Maintenance - Citywide	$2,015,561
Arterial Street Resurfacing	$2,998,787
Annual Pavement System Upgrade - Citywide	$186,088
Total	$9,000,436

The streets recommended for RMRA use were selected based on the methodology described below. A Project Map showing the street locations is attached.

The City maintains approximately 383 miles of streets. Historically, street inspections have been performed by consultants on a three-year rotation with a third of residential and collector streets inspected each year and 100% of arterial roads receiving annual inspections. These are referred to as Rotations A, B, & C.

The City's street resurfacing consultant, Pavement Engineering Inc. (PEI), uses a Pavement Management System (PMS) to assist with tracking inventory, storing work history and furnishing budget estimates to optimize funding for improving the City's pavement system using a software program called StreetSaver. The PMS also helps the city identify candidate streets for potential repair and maintenance and what sort of repair will be necessary.

PEI uses a variety of measurements to determine the Pavement Condition Index, or PCI of each road segment.

These measurements include:
1. How many cracks there are in a mile of pavement;
2. How deep and long those cracks are;
3. What the crack pattern is;
4. What percentage of a road segment displays deficiencies.

Crack/deficiency patterns include:
1. Alligator cracking

2. Block cracking
3. Longitudinal cracking
4. Transverse cracking
5. Distortions
6. Utility cuts/patches
7. Rutting/depressions
8. Weathering

The patterns and the percentage of roadway segments affected are entered into StreetSaver and a PCI is generated. Engineers at PEI use that information to determine the most cost effective repair strategy. PEI will take the cost and the life expectancy of the repair to determine the annual maintenance cost. This is the critical part, spending no more than what is necessary on an annual basis on road maintenance.

Another critical factor is when the roadway should be paved. Incorrectly timed repairs can lead to additional repairs due to deferred maintenance. There is a point on each road segment where the right timing matches up with the appropriate repair method to create a cost effective pavement repair. Public Works staff then takes this information and considers how the timing of street repairs matches up with the timing of pipe replacement needs, and how the streets can be grouped together in a way that maximizes cost effectiveness and efficiency. This analysis is used to create the City's Pavement Management Program, which is the method used to select projects to use RMRA funding.

STRATEGIC PRIORITIES

This agenda item supports the Infrastructure and Natural Resources strategy. The purpose of the Infrastructure and Natural Resources strategy is to establish, preserve and improve our infrastructure and natural resources through effective planning, prioritization, and efficient use of available funding. This item supports the following goals and objectives: Goal 4. Ensure proper construction and maintenance of infrastructure to provide maximum benefit with lowest life cycle cost following CIP plans.

Objective 4b. Catch up on deferred maintenance for City facilities.

FINANCIAL IMPACT

Recommended action and resolution fulfills State requirements and does not appropriate funds through this item. Actual funding will be requested and appropriated during the budgeting process for FY 2021-22.

Prepared by: Debbie O'Leary, Transportation Planner

ATTACHMENTS

1. RMRA Resolution
2. RMRA Project Map
3. RMRA Street List
4. RMRA Powerpoint

CITY COUNCIL OF THE CITY OF

OXNARD RESOLUTION NO.

RESOLUTION ADOPTING A LIST OF PROJECTS FOR FISCAL YEAR 2021-22 FUNDED BY SB 1: THE ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017

WHEREAS, Senate Bill 1 (SB 1), the Road Repair and Accountability Act of 2017 (Chapter *5,* Statutes of 2017) was passed by the Legislature and Signed into law by the Governor in April 2017 to address the significant multi-modal transportation funding shortfalls statewide; and

WHEREAS, SB 1 includes accountability and transparency provisions that will ensure the residents of our City are aware of the projects proposed for funding in our community and which projects have been completed each fiscal year; and

WHEREAS, the City of Oxnard must adopt by resolution a list of projects proposed to receive fiscal year funding from the Road Maintenance and Rehabilitation Account (RMRA), created by SB 1, which must include a description and the location of each proposed project, a proposed schedule for the project's completion, and the estimated useful life of the improvement, as described in State Highway Code 2034(a)(1); and

WHEREAS, the City of Oxnard, will receive an estimated $4,102,020 in RMRA funding in Fiscal Year 2021-22 from SB **1;** and

WHEREAS, this is the fifth year in which the City of Oxnard is receiving SB 1 funding and will enable the City to continue essential road maintenance and rehabilitation projects, safety improvements, and increasing access and mobility options for the traveling public that would not have otherwise been possible without SB l; and

WHEREAS, the City of Oxnard has undergone a public process to ensure public input into our community's transportation priorities (the project list); and

WHEREAS, the City of Oxnard used a Pavement Management System to develop the SB 1 project list to ensure revenues are being used on the most high-priority and cost-effective projects that also meet the communities priorities for transportation investment; and

WHEREAS, the funding from SB 1 will help the City of Oxnard maintain and rehabilitate multiple streets and road projects within several neighborhoods throughout the City this year and multiple similar projects into the future; and

WHEREAS, the 2018 California Statewide Local Streets and Roads Needs Assessment found that the City's streets and roads are at a higher risk condition and this revenue will help us increase the overall quality of our road system and over the next decade may bring our streets and roads into a good condition; and

WHEREAS, the SB 1 project list and overall investment in our local streets and roads infrastructure with a focus on basic maintenance and safety, investing in complete streets infrastructure, and using cutting-edge technology, materials and practices, will have significant positive co-benefits statewide.

NOW, THEREFORE IT IS HEREBY RESOLVED, ORDERED AND FOUND by the City Council of the City of Oxnard, as follows:

1. The foregoing recitals are true and correct.

2. The City Council authorizes the use of funds for prior year RMRA in the amount of $4,618,416 and the new Fiscal Year 2021-2022 funds of $4,102,020 for a total amount of $8,720,436. The following list of newly proposed projects will be funded in-part or solely with Fiscal Year 2021-22 and prior years Road Maintenance and Rehabilitation Account revenues. The following locations identified are subject to change:

Project Title	Project Description	Project Location (map attached)	Estimated Schedule Start/End	Estimated useful life
Neighborhood Street Resurfacing	Street overlay, ADA improvement, Concrete work, Traffic striping	Rice Avenue Commercial and Neighborhood Area (see attached list)	7/1/2021 to 6/30/2023	15 years
Arterial Street Resurfacing	Street overlay, ADA improvement, Concrete work, Traffic striping	East Gonzales Road between Oxnard Boulevard and Rice Avenue, West Gonzales Road between Oxnard Boulevard and Victoria Avenue, and Teal Club Road from Ventura Road to Victoria Avenue	7/1/2021 to 12/31/2022	15 years

3. The following previously proposed and adopted projects may also utilize Fiscal Year 2021-22 and prior years Road Maintenance and Rehabilitation Account revenues in their delivery. With the relisting of these projects in the adopted fiscal year resolution, the City of Oxnard is reaffirming to the public and the State our intent to fund these projects with Road Maintenance and Rehabilitation Account revenues.

Project Title	Project Description	Project Location	Estimated Schedule Start/End	Estimated useful life
Public Works Road & Signal Maintenance	City Staff provide ongoing maintenance to roadways and traffic signals Citywide	All Citywide streets are included in this operational project, which provides as-needed and on-going maintenance for all City street and traffic signal infrastructure. City streets and intersections may include Ventura Road, Oxnard Boulevard, Saviers Road, Rose Avenue, Rice Avenue, Gonzales Road, Fifth Street, Wooley Road, Channel Islands Boulevard, and Pleasant Valley Road. The locations identified are subject to change.	6/1/2021 to 6/30/2023	7 years
Annual Pavement System Upgrade	Inspection of City Streets, updating the Pavement Management System to develop a Streets Master Plan	All Citywide streets are included in this planning project such as Ventura Road, Oxnard Boulevard, Saviers Road, Rose Avenue, Rice Avenue, Gonzales Road, Fifth Street, Wooley Road, Channel Islands Boulevard, and Pleasant Valley Road. The locations identified are subject to change.	61/2020 to 6/30/2023	3 years

4. The City Council authorizes the City Manager to take whatever actions are necessary and appropriate to carry out the purpose and intent of this resolution.

PASSED AND ADOPTED THIS of by the following vote:

AYES:

NOES:

ABSTAIN:

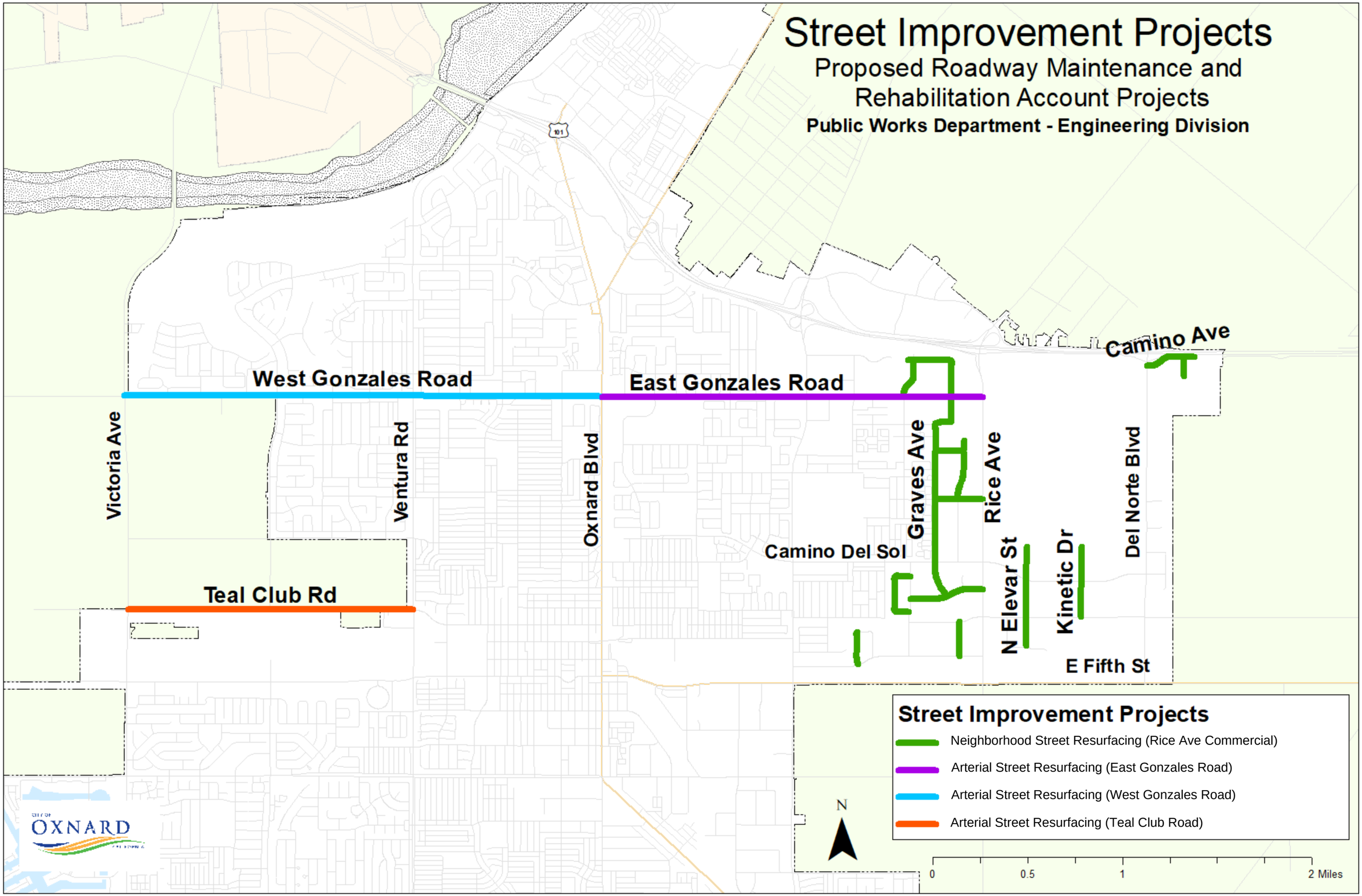
ABSENT:

ATTEST:

Street Improvement Projects

Proposed Roadway Maintenance and Rehabilitation Account Projects

Public Works Department - Engineering Division



City of Oxnard Fiscal Year 2021-22 RMRA Project Location List
The locations identified are subject to change

NEIGHBORHOOD STREET RESURFACING

Graves Avenue
From Celsius Avenue to Camino Avenue
From Camino Del Sol to Wankel Way

Kinetic Drive
From Camino Avenue to north end of City limits
From Camino Del Sol to Sturgis Road

Camino Avenue
From Del Norte Boulevard to east end of City limits

Trabajo Drive
From Camino Avenue to end of street

Celsius Avenue
From North Lombard Street to North Rice Avenue

Candelaria Road
From Sturgis Road to Eastman Avenue

North Elevar Street
From Sturgis Road to Camino Del Sol
From Sturgis Road to Challenger Place
From Camino Avenue to north end of street

Bernoulli Circle
From Lombard Street to Lombard Street

Latigo Avenue
From Via Brisas to Maulhardt Avenue

Maulhardt Avenue
From Latigo Avenue to north end of street

Santiago Court
From Graves Avenue to Maulhardt Avenue

Solar Drive
From Graves Avenue to Gonzales Road
From Gonzales Road to Lockwood Street

Wankel Way
From Solar Drive to Graves Avenue

Lockwood Street
From Outlet Center Drive to Solar Drive

Outlet Center Drive
From Gonzales Road to Lockwood Street

Hearst Drive
From Eastman Avenue to Cabot Place

ARTERIAL STREET RESURFACING

East Gonzales Road
From Oxnard Boulevard to Rice Avenue
West Gonzales Road
From Oxnard Boulevard to Victoria Avenue
Teal Club Road
From Ventura Road to Victoria Avenue

PUBLIC WORKS ROAD & SIGNAL MAINTENANCE

All Citywide streets are included in this operational project, which provides as-needed and on-going maintenance for all City street and traffic signal infrastructure
City streets and intersections may include:
Ventura Road
Oxnard Boulevard
Saviers Road
Rose Avenue
Rice Avenue
Gonzales Road
Fifth Street
Wooley Road
Channel Islands Boulevard
Pleasant Valley Road

ANNUAL PAVEMENT SYSTEM UPGRADE

All Citywide streets are included in this planning project
City streets and intersections may include:
Ventura Road
Oxnard Boulevard
Saviers Road
Rose Avenue
Rice Avenue
Gonzales Road
Fifth Street
Wooley Road
Channel Islands Boulevard
Pleasant Valley Road

SENATE BILL (SB1) ROAD MAINTENANCE REHABILITATION ACCOUNT (RMRA) FUNDING AND PROJECT LIST FOR FISCAL YEAR 2021-22

Public Works and Transportation Committee
March 23, 2021

Tatiana Arnaout, City Engineer

CITY OF OXNARD CALIFORNIA

RECOMMENDATION

That the Public Works and Transportation Committee recommend the City Council adopt a resolution to:

1. Adopt the Fiscal Year 2021-22 project list of Senate Bill 1 (SB1) proposed projects which will be funded in part or solely with Road Maintenance and Rehabilitation Account revenues; and

2. Authorize the City Manager to take whatever actions are necessary and appropriate to carry out the purpose and intent of the resolution.

BACKGROUND - SB1 RMRA

April 2017 - Governor signed Senate Bill 1 (SB1) also known as the Road Repair and Accountability Act of 2017.

- SB1 increases fuel taxes and vehicle registration to provide the State an estimated $5.4 billion annually to fix roadways.

- SB1 is distributed through several programs including the Roadway Maintenance and Rehabilitation Account (RMRA).

BACKGROUND - SB1 RMRA

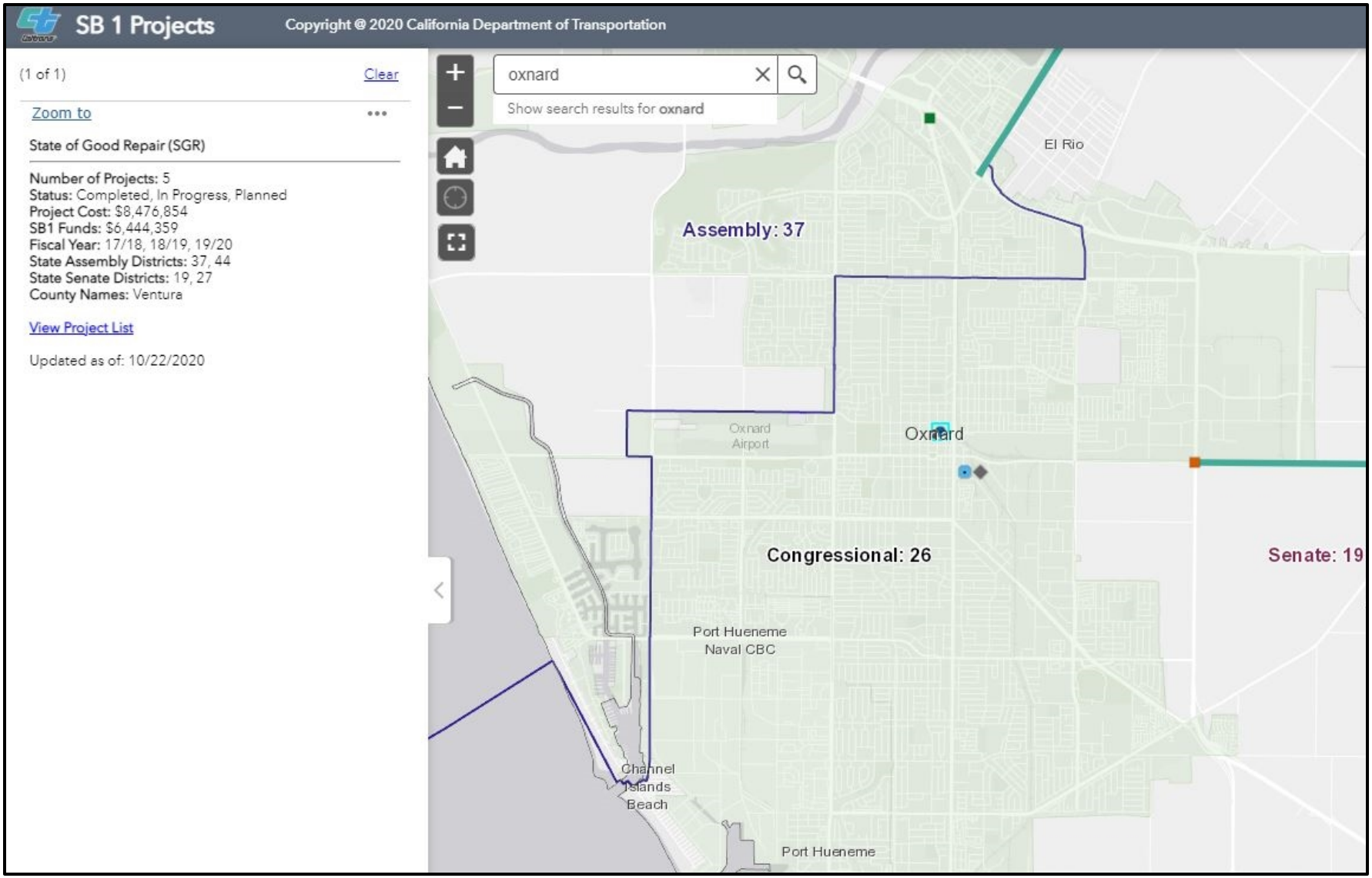
- RMRA
  - Provides City with monthly funding on a per-capita basis
  - May only be used for road maintenance and rehabilitation
    when the pavement condition index of 79 or below
  - City's pavement condition index is currently at 63

- California Transportation Commission (CTC) requires agencies to adopt a Resolution listing projects utilizing RMRA

BACKGROUND - SB1 RMRA COMPLETED PROJECTS

BACKGROUND - SB1 RMRA COMPLETED PROJECTS

BACKGROUND - SB1 CALTRANS MAPPING DATABASE



DISCUSSION

Project	RMRA Funding
Neighborhood Street Resurfacing	$3,800,000
Public Works Road & Signal Maintenance	$2,015,561
Arterial Street Resurfacing	$2,998,787
Annual Pavement System Upgrade	$186,088
Total	**$9,000,436**

DISCUSSION

City Responsible for Road Maintenance & Rehab of:

Street Centerline Miles	*Alley Miles	*Parking Lots
448	70	61

*RMRA can only be used on street miles, alley miles and parking lots do not qualify for RMRA use

City of Oxnard

Miles Maintained:

Centerline Miles:	448.6
Lane Miles:	1,039.8
Square Miles:	3.5

Here is how you did:

Current PCI:	63
PCI on January 1:	60
% of Very Good:	44%
% of Very Poor:	8%

DISCUSSION

- Street inspections performed on a three-year rotation by Pavement Engineering Inc (PEI):
  - 1/3rd of residential and collector streets inspected each year
  - 100% of arterial roads inspected each year

- Pavement Management System (PMS) is used to:
  - Track inventory, store work history, and estimate cost
  - Identify candidate streets for potential repair and maintenance

DISCUSSION

- PEI uses a variety of measurements to determine the Pavement Condition Index (PCI) including:
  - How many cracks there are in a mile of pavement
  - How deep and long those cracks are
  - What the crack pattern is
  - What percentage of a road segment displays deficiencies

- Crack and deficiency patterns include:
  - Alligator cracking
  - Block cracking
  - Longitudinal cracking
  - Transverse cracking

DISCUSSION

- The patterns and the percentage of roadway segment are entered into the StreetSaver database and a PCI is generated.

- Information is used to determine the most cost effective repair strategy:
  - Cost of repair + life expectancy = annual maintenance cost
  - Timing repairs accurately minimizes deferred maintenance
  - This means not spending more than what is necessary on an annual basis on road maintenance

DISCUSSION

- Public Works reviews this information and considers:

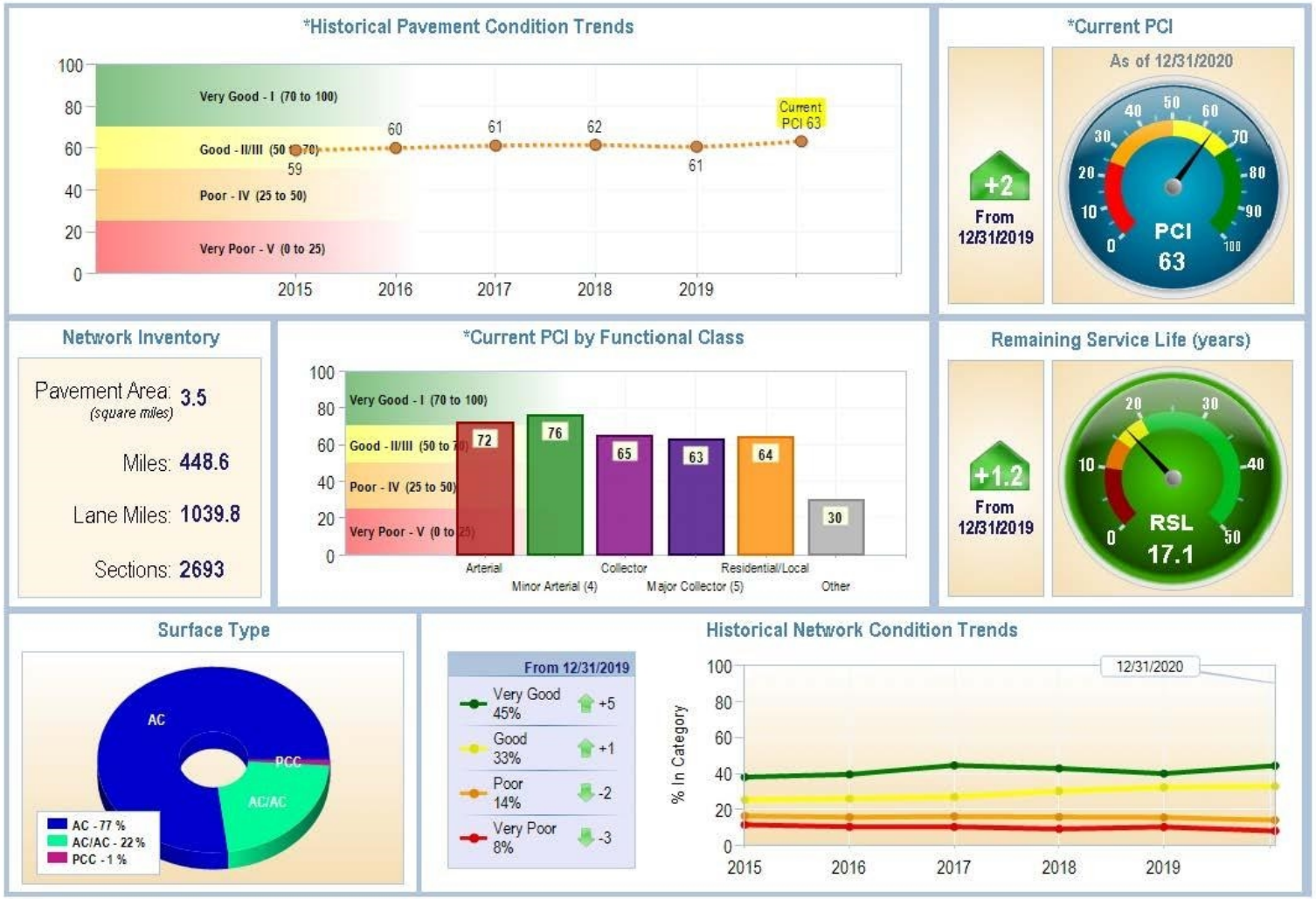
1. How the timing of street repairs matches with pipe replacement needs, and
2. How can the streets be grouped to maximize cost effectiveness and efficiency.

- This analysis is used to create our Pavement Management Program and recommendation for projects to use RMRA funding.

DISCUSSION

City of Oxnard

City of Oxnard
Run Date: 12/31/2020



FINANCIAL IMPACT

Recommended action and resolution fulfills State requirements and does not appropriate funds through this item.

Project	RMRA Funding
Neighborhood Street Resurfacing	$3,800,000
Public Works Road & Signal Maintenance	$2,015,561
Arterial Street Resurfacing	$2,998,787
Annual Pavement System Upgrade	$186,088
Total	**$9,000,436**

CITY OF
OXNARD
CALIFORNIA

QUESTIONS

PUBLIC WORKS AND TRANSPORTATION COMMITTEE
AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.2

DATE: March 23, 2021

TO: Public Works and Transportation Committee

FROM: Craig Beck, Interim Public Works Director, (805) 385-8055, craig.beck@oxnard.org

SUBJECT: Railroad Quiet Zone Establishment. (0/10/10)

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council receive and file a report on the Federal Railroad Administration's Railroad Quiet Zone process and potential application within the City of Oxnard.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/dmWvQVWdwWM

BACKGROUND

Railroads have sounded locomotive horns or whistles in advance of grade crossings and in other circumstances as a universal safety precaution for decades. During the 20th century, nearly every state in the nation enacted laws requiring railroads to do so.

Due to a lack of state uniformity, and in accordance with a statutory mandate, the Federal Railroad Administration (FRA) issued regulations that took effect in 2005 that require locomotive horns be sounded in advance of all public highway-rail crossings.

Regulations governing the sounding of train horns are established in the Code of Federal Regulations, Title 49, Part 222, titled "Use of Locomotive Horns at Public Highway-Rail Grade Crossings," also known as the "Train Horn Rule." Under the Federal regulation, locomotive engineers must sound train horns for a minimum of 15 seconds, and a maximum of 20 seconds, in advance of all public grade crossings except under certain circumstances. The sounding of a train horn as a warning device is an essential function for railroad operators and provides a fundamental public service for operations near grade crossings and along tracks where pedestrian activity may exist.

With many railroads operating 24 hours a day, horns can become disruptive for residential areas and other users near the rail facilities. This conflict has increased as municipalities have developed residential neighborhoods in close proximity to existing railroad operations and increased the density of people in close proximity to train operations.

The Train Horn Rule allows for an exception to the requirements for sounding train horns when safety

measures fully compensate for the absence of the warning provided by the train horn. Communities that qualify for this exception may create "quiet zones" where train horns would not be routinely sounded by demonstrating that silencing train horns does not present a significant risk of loss of life or serious injury. The general approach to achieving a quiet zone is to reduce risk to less than the national average or to less than the risk that would be anticipated with train horns routinely sounded.

This report discusses some of the issues associated with pursuing a quiet zone designation within the City of Oxnard. The report summarizes information assembled to date and provides Council with recommendations to consider if opting to move forward with further investigation of the quiet zone establishment.

DISCUSSION

Only local governments or public agencies may establish a quiet zone for railroads operating within their jurisdiction. The process for establishing a quiet zone can be lengthy, expensive and involve multiple jurisdictions, operators and property owners. The process must ensure that crossings become "automatic" in warning crossing users and prohibiting conflicts from occurring. The quiet zone affects both public and private crossings but specific to public crossings - every public grade crossing must be equipped with the standard or conventional automatic warning devices (i.e. flashing lights and gates) to ensure notification to users is given. Additionally, substandard crossings are required to be upgraded to current equipment standards for improved communications to reduce risks associated with discontinuation of train horns. It is important to note, a full upgrade of all crossings does not guarantee that train horns will not be sounded as engineers must still sound the horn if trespass or other safety issues occur along the quiet zone areas.

Local governments must work in cooperation with the railroad or others that own the track and the appropriate state transportation authority to convene a diagnostic team to assess the risk of collisions at each grade crossing where they wish to silence the horn. Through this process an objective determination is made about where and what type of additional safety engineering improvements would be necessary to effectively reduce the risk associated with silencing the horns; each based on localized conditions. Conditions that need to be considered include: highway traffic volumes; train traffic volumes; the collision history and physical characteristics of the crossing; pedestrian and other trespass issues; and other existing operational or safety measures.

Quiet zones require substantial coordination, review and processing of information with various entities including the FRA, operating railroads, property and right of way owners, the California Public Utilities Commission (CPUC), and others. For Oxnard this would also include adjacent property owners, the Port of Hueneme and the City of Port Hueneme. Attachment 1 contains a brochure produced by the FRA that discusses creation of quiet zones.

To qualify, a quiet zone must reduce risk to less than the national average or to less than the risk that would be anticipated with train horns being routinely sounded. There are three main criteria used in establishing a quiet zone:

1. A **Quiet Zone Risk Index (QZRI)** is a calculation of aggregate risk of collision and is used to compare anticipated risk under different conditions and scenarios.
2. The **Nationwide Significant Risk Threshold (NSRT)** is a numerical representation of the national average level of risk of collision at railroad crossings equipped with standard flashing lights and gates and at which horns are sounded.
3. The **Risk Index with Horns (RIWH)** is a measure of risk when train horns are routinely sounded at every grade crossing within a segment of rail being considered for a quiet zone.

A segment of rail may qualify for a quiet zone if it is at least half (½) mile in length and if the calculated Quiet Zone Risk Index after installation of safety measures within that length, is less than the Nationwide Significant Risk Threshold or less than the Risk Index with Horns for that segment.

The Quiet Zone Establishment Process

The following is a summary of the necessary needed to establish a quiet zone. Attachment 2 contains a pictorial representation of this process):

1. **Determine which crossings will be included in the quiet zone**. A quiet zone must be a minimum of half (½) mile in length. All public highway-rail crossings in the quiet zone must have, at a minimum, an automatic warning system consisting of flashing lights and gates. The warning systems must be equipped with constant warning time devices (except in rare circumstances) and power out indicators.

2. **Identify any private highway-rail grade crossings within the proposed quiet zone.** If they allow access to the public or provide access to active industrial or commercial sites, a diagnostic review must be conducted and the crossing(s) treated in accordance with the recommendations of the diagnostic team.

3. **Identify any pedestrian crossings within the proposed quiet zone and conduct a diagnostic review of those crossings too.** They also must be treated in accordance with the diagnostic team's recommendations. NOTE: While it is not required by the regulations, FRA recommends that every crossing within a proposed quiet zone be reviewed for safety concerns.

4. **Update the U.S. DOT Crossing Inventory Forms to reflect current physical and operating conditions** at each public, private, and pedestrian crossing located within a proposed quiet zone.

5. **Provide a Notice of Intent (NOI) to all of the railroads that operate over crossings in the proposed quiet zone**, the State agency responsible for highway safety and the State agency responsible for crossing safety. The NOI must list all of the crossings in the proposed quiet zone and give a brief explanation of the tentative plans for implementing improvements within the quiet zone. The railroads and State agencies have 60 days in which to provide comments to the public authority on the proposed plan.

6. **Alternative Safety Measures** – If ASMs are going to be used to reduce risk, an application to FRA must be made. The application must include all of the elements provided in 49 CFR 222.39(b)(1) and copies of the application must be sent to the entities listed in 49 CFR 222.39(b)(3). They will have 60 days to provide comments to FRA on the application. FRA will provide a written decision on the application typically within three to four months after it is received.

7. **Determine how the quiet zone will be established** using the following criteria (only one necessary):
a. Every public highway-rail crossing in the proposed quiet zone is equipped with one or more SSMs.
b. The Quiet Zone Risk Index (QZRI) of the proposed quiet zone is less than or equal to the Nationwide Significant Risk Threshold (NSRT) without installing SSMs or ASMs.
c. The QZRI of the proposed quiet zone is less than or equal to the Nationwide Significant Risk Threshold (NSRT) after the installation of SSMs or ASMs.
d. The QZRI of the proposed quiet zone is less than or equal to the Risk Index with Horns (RIWH) after the installation of SSMs or ASMs.

8. Complete the installation of SSMs and ASMs and any other required improvements determined by the

diagnostic team at all public, private, and pedestrian crossings within the proposed quiet zone. Ensure that the required signage at each public, private, and pedestrian crossing is installed in accordance with 49 CFR Sections 222.25, 222.27, and 222.35, and the standards outlined in the Manual on Uniform Tra□c Control Devices.

9. **Establish the quiet zone by providing a Notice of Quiet Zone Establishment to all of the parties** that are listed in 49 CFR Section 222.43(a)(3). The quiet zone can take effect no earlier than 21 days after the date on which the Notice of Quiet Zone Establishment is mailed.

The Need for Consultant Assistance

Because the establishment of a quiet zone is complex, and City staff has little experience in processing quiet zone applications, staff recommends that consultant services be utilized. Attachment 3 is an example of a Quiet Zone Assessment Report prepared for Rapid City, South Dakota used to pursue quiet zone designation. A similar report would be needed for Oxnard.

Railroad Operations in the City

There are two primary railroad operations within the City. The Union Pacific Railroad (UPRR) is the Class I freight carrier on the coast mainline through Ventura County and all the way along California's Central Coast. Freight rail provides a prime intermodal link between the Port of Hueneme, the largest California seaport between Los Angeles and Oakland, and markets throughout North America. This line also provides passenger service with AMTRAK and Metrolink trains providing daily service to Oxnard, adjacent cities within the county to regions south and north of the area.

The Ventura County Railway (VCRR), a short line railroad operated by Genesee & Wyoming (G&W) Railroad, connects the Port of Hueneme, Naval Base Ventura County and the industrial areas of south Oxnard to UPRR. The VCRR currently extends for just over 12 miles on four branches and plays a significant role in the transport of freight and goods serving the industrial areas of South Oxnard, the Port of Hueneme, and the Naval Base Ventura County Port Hueneme Division. The VCRR connects with the UPRR Coast Main Line in downtown Oxnard. Staff has already met with Port of Hueneme staff to discuss quiet zone implications.

Within the greater Oxnard service area the FRA identifies over fifty crossings in their national database. The City would be responsible with reviewing and updating this list to ensure any crossing in the quiet zone is included in the FRA database. Some of these crossings are private and some are under other jurisdictional control (such as City of Port Hueneme). They are comprised of both grade separated locations as well as at-grade crossings. The at-grade crossings vary with some being passive crossings only (with signs and striping) and others existing with fully automated gating and signal equipment that controls traffic flow.

Depending upon the location of where the City pursues a quiet zone, all crossings in that area would need to be reviewed and if needed, upgraded to meet the Train Horn Rule requirements. Railroads must process a quiet zone request but they are not guaranteed to support them. Additionally, even if a quiet zone is established, issues of safety can keep a quiet zone from occurring. Pedestrian trespass (pedestrians crossing the rail lines or in close proximity to them) is an example where railroad operators would need to sound horns even if all of the grade crossings are improved along the corridor to meet quiet zone requirements. In this example, additional pedestrian screening or separation may be needed to fully meet general public, quiet zone expectations.

Crossing Examples

Oxnard has a variety of crossing types; some that meet current safety standards that could be used in a quiet zone application, some that do not. Two examples below provide a snapshot of what would be considered in a

quiet zone review.

Example 1: Wooley at South E Street

Wooley Road has a mixture of crossings, with some being fully actuated and some being passive. An example of a passive crossing is at Wooley and E Street. This crossing currently does not have signal equipment or other automated equipment to restrict crossings or notify drivers of approaching trains. This location would require safety upgrades to meet quiet zone standards with specific improvements being identified through the risk assessment study.

Figure 1 - Wooley at E Street Crossing

Southbound E Street is restricted to right turn only however vehicles can still cross the tracks if they opt to violate the turn restriction. Additionally, school pedestrians cross at this location and would likely need attention to reduced potential for a conflict. Complicating the location further is the narrowness of the railroad right of way (and close proximity to the street) and the difficulty in placing gate and signal equipment such that it is safe and meets design standards.

Potential improvements at this location could consist of a mixture of the following:
1. New gates, communications equipment and signage.
2. Medians or curbing on one or both sides of the tracks to prevent a motorist from driving around lowered gates.
3. A four-quadrant gate system to block all lanes of highway traffic.
4. Permanent closure of the crossing to highway vehicle traffic.
5. Fencing and other barriers to reduce trespass.

Example 2: The Gary Street Pedestrian Crossing

Not only vehicle crossings will need to be reviewed as part of a quiet zone establishment. Private crossings and others non-vehicle crossings will also need to be studied and potentially upgraded with safety improvements. An example of an atypical pedestrian crossing connects the Blackstock North and College Estates neighborhoods. Figures 2 and 3 show the location and current railroad equipment located at this crossing.

Figure 2 - Gary Street Pedestrian Crossing

Figure 3 - Gary Street Pedestrian Crossing

The crossing currently consists of actuated signals to inform pedestrians of approaching trains however there is no positive barrier (gates) at the location and pedestrians and bicyclists can access the crossing even when warnings are taking place. The crossing would likely need control gates to meet quiet zone requirements.

Accurately estimating the cost of upgrading the crossing to meet quiet zone requirements is difficult without more detailed study since there may be multiple options for improvement. As a worst case scenario, the need for a fully functional four quadrant gating system would likely cost $500,000 - $750,000 (construction costs alone) if the entire crossing needed to be upgraded to the greatest extent with gates, signals and other equipment. Attachment 4 contains a listing of some supplemental safety measures, rough cost estimates and the measure of effectiveness for comparison to the Risk Index With Horns.

Next Steps

The following are staff's recommendations for how best to move forward:

1. Identify locations within the Oxnard for potential quiet zone implementation (staff)
2. Appropriate funding and hire a consultant to evaluate crossing locations, prepare alternative assessments, and develop estimates of costs
3. Provide report to Council for consideration and final direction

STRATEGIC PRIORITIES

This agenda item supports the Quality of Life strategy. The purpose of the Quality of Life strategy is to build relationships and create opportunities within the community for safe and vibrant neighborhoods, which will showcase the promising future of Oxnard. This item supports the following goals and objectives:

Goal 3. Strengthen neighborhood development, and connect City, community and culture.

Objective 3a. Create a renewed focus on establishing a positive outlook and orientation of our City, neighborhoods and overall community.

FINANCIAL IMPACT

There is no direct financial impact to receive and file this report. Currently, there is no available budget allocation for the review and investigation of a quiet zone within the City nor does the project currently exist in a work program for the City. Due to the complexity of the issues, and the potential large costs associated with the need for improvements at these railroad crossings, it is recommended that consultant assistance be utilized to expedite and complete the needed background work to formally consider the issues associated with quiet zone implementation.

Staff proposes to bring forward a funding request as part of the upcoming FY 2021-22 Budget process for these services. There may be financial participation by other interested parties such as the Port of Hueneme, City of Port Hueneme and private property owners that could help share in these costs.

Ultimately, it is likely that the process will result in a series of public improvement projects at various crossings within the city to meet the minimum requirements of the Train Horn Rule program.

Prepared by: Timothy Bochum, City Traffic Engineer, Tatiana Arnaout, City Engineer

ATTACHMENTS

1. QuietZoneBrochure
2. Quiet Zone Establishment Process Outline
3. Example of Quiet Zone Assessment Report - Rapid City, SD
4. Supplementary Safety Measure
5. Oxnard Public Railroad Crossings Map
6. Presentation

GUIDE TO THE QUIET ZONE ESTABLISHMENT PROCESS

AN INFORMATION GUIDE

Federal Railroad Administration
1200 New Jersey Avenue S.E.
Washington, DC 20590
Telephone: 202-493-6299
www.fra.dot.gov

Federal Railroad Administration

Highway-Rail Crossing and Trespasser Programs Division

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Purpose of the Guide

This brochure was developed to serve as a guide for local decision makers seeking a greater understanding of train horn sounding requirements and how to establish quiet zones. Its purpose is to provide a general overview and thus does not contain every detail about the quiet zone establishment process. For more detailed and authoritative information, the reader is encouraged to review the official regulations governing the use of locomotive horns at public highway-rail grade crossings and the establishment of quiet zones that are contained in 49 CFR Part 222. A copy of the rule can be downloaded or printed at http://www.fra.dot.gov/eLib/Details/L02809.

About Quiet Zones

FRA is committed to reducing the number of collisions at highway-rail grade crossings, while establishing a consistent standard for communities who opt to preserve or enhance quality of life for their residents by establishing quiet zones within which routine use of train horns at crossings is prohibited.

Federal regulation requires that locomotive horns begin sounding 15–20 seconds before entering public highway-rail grade crossings, no more than one-quarter mile in advance. Only a public authority, the governmental entity responsible for traffic control or law enforcement at the crossings, is permitted to create quiet zones.

A quiet zone is a section of a rail line at least one-half mile in length that contains one or more consecutive public highway-rail grade crossings at which locomotive horns are not routinely sounded when trains are approaching the crossings. The prohibited use of train horns at quiet zones only applies to trains when approaching and entering crossings and does not include train horn use within passenger stations or rail yards. Train horns may be sounded in emergency situations or to comply with other railroad or FRA rules even within a quiet zone. Quiet zone regulations also do not eliminate the use of locomotive bells at crossings. Therefore, a more appropriate description of a designated quiet zone would be a “reduced train horn area.”

Communities wishing to establish quiet zones must work through the appropriate public authority that is responsible for traffic control or law enforcement at the crossings.

Historical Context

Historically, railroads have sounded locomotive horns or whistles in advance of grade crossings and under other circumstances as a universal safety precaution. Some States allowed local communities to create whistle bans where the train horn was not routinely sounded. In other States, communities created whistle bans through informal agreements with railroads.

In the late 1980's, FRA observed a significant increase in nighttime train-vehicle collisions at certain gated highway-rail grade crossings on the Florida East Coast Railway (FEC) at which nighttime whistle bans had been established in accordance with State statute In 1991, FRA issued Emergency Order #15 requiring trains on the FEC to sound their horns again. The number and rate of collisions at affected crossings returned to pre-whistle ban levels.

In 1994, Congress enacted a law that required FRA to issue a Federal regulation requiring the sounding of locomotive horns at public highway-rail grade crossings. It also gave FRA the ability to provide for exceptions to that requirement by allowing communities under some circumstances to establish "quiet zones."

The Train Horn Rule became effective on June 24, 2005. The rule set nationwide standards for the sounding of train horns at public highway-rail grade crossings. This rule changed the criteria for sounding the horn from distance-based to time-based. It also set limits on the volume of a train horn. The rule also established a process for communities to obtain relief from the routine sounding of train horns by providing criteria for the establishment of quiet zones. Locomotive horns may still be used in the case of an emergency and to comply with Federal regulations or certain railroad rules.

Public Safety Considerations

Because the absence of routine horn sounding increases the risk of a crossing collision, a public authority that desires to establish a quiet zone usually will be required to mitigate this additional risk. At a minimum, each public highway–rail crossing within a quiet zone must be equipped with active warning devices: flashing lights, gates, constant warning time devices (except in rare circumstances) and power out indicators.

In order to create a quiet zone, one of the following conditions must be met

1. ***The Quiet Zone Risk Index (QZRI)*** **is less than or equal to the** ***Nationwide Significant Risk Threshold (NSRT)*** with or without additional safety measures such as Supplementary Safety Measures (SSMs) or Alternative Safety Measures (ASMs) described below. The QZRI is the average risk for all public highway-rail crossings in the quiet zone, including the additional risk for absence of train horns and any reduction in risk due to the risk mitigation measures. The NSRT is the level of risk calculated annually by averaging the risk at all of the Nation's public highway-rail grade crossings equipped with flashing lights and gates where train horns are routinely sounded.
2. ***The Quiet Zone Risk Index (QZRI) is less than or equal to the Risk Index With Horns (RIWH)*** with additional safety measures such as SSMs or ASMs. The RIWH is the average risk for all public highway-rail crossings in the proposed quiet zone when locomotive horns are routinely sounded.
3. ***Install SSMs at every public highway-rail crossing****.* This is the best method to reduce to reduce risks in a proposed quiet zone and to enhance safety.

SSMs are pre-approved risk reduction engineering treatments installed at certain public highway-rail crossings within the quiet zone and can help maximize safety benefits and minimize risk. SSMs include: medians or channelization devices, one-way streets with gates, four quadrant gate systems, and temporary or permanent crossing closures. Examples of SSMs are shown on the next page.

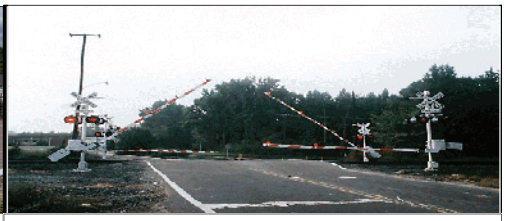
ASMs are safety systems, other than SSMs, that are used to reduce risk in a quiet zone. ASMs typically are improvements that do not fully meet the requirements to be SSMs and their risk reduction effectiveness must be submitted in writing and approved by FRA.

FRA strongly recommends that all crossings in the quiet zone be reviewed by a diagnostic team. A diagnostic team typically consists of representatives from the public authority, railroad, and State agency responsible for crossing safety and FRA grade crossing managers.

Public Safety Considerations continued

Examples of SSMs

Crossing Closure



Four Quadrant Gate System

Gates with Channelization Devices

Gates with Medians

Wayside Horns The train horn rule also provides another method for reducing the impact of routine locomotive horn sounding when trains approach public highway-rail grade crossings. A wayside horn may be installed at highway-rail grade crossings that have flashing lights, gates, constant warning time devices (except in rare circumstances), and power out indicators. The wayside horn is positioned at the crossing and will sound when the warning devices are activated. The sound is directed down the roadway, which greatly reduces the noise footprint of the audible warning. Use of wayside horns is not the same as establishing a quiet zone although they may be used within quiet zones.

Cost Considerations

The enabling Federal statute did not provide funding for the establishment of quiet zones. Public authorities seeking to establish quiet zones should be prepared to finance the installation of SSMs and ASMs used. Costs can vary from $30,000 per crossing to more than $1 million depending on the number of crossings and the types of safety improvements required.

Legal Considerations

The courts will ultimately determine who will be held liable if a collision occurs at a grade crossing located within a quiet zone, based upon the facts of each case, as a collision may have been caused by factors other than the absence of an audible warning. FRA's rule is intended to remove failure to sound the horn as a cause of action in lawsuits involving collisions that have occurred at grade crossings within duly established quiet zones.

The Quiet Zone Establishment Process

Under the Train Horn Rule, only public authorities are permitted to establish quiet zones. Citizens who wish to have a quiet zone in their neighborhood should contact their local government to pursue the establishment of a quiet zone. The following is a typical example of the steps taken to establish a quiet zone:

1. ***Determine*** which crossings will be included in the quiet zone. All public highway-rail crossings in the quiet zone must have, at a minimum, an automatic warning system consisting of flashing lights and gates. The warning systems must be equipped with constant warning time devices (except in rare circumstances) and power out indicators. The length of the quiet zone must be at least one-half mile in length.

2. ***Identify*** any private highway-rail grade crossings within the proposed quiet zone. If they allow access to the public or provide access to active industrial or commercial sites, a diagnostic review must be conducted and the crossing(s) treated in accordance with the recommendations of the diagnostic team.

3. ***Identify*** any pedestrian crossings within the proposed quiet zone and conduct a diagnostic review of those crossings too. They also must be treated in accordance with the diagnostic team's recommendations. *NOTE:* While it is not required by the regulations, FRA recommends that every crossing within a proposed quiet zone be reviewed for safety concerns.

4. ***Update*** the U.S. DOT Crossing Inventory Form to reflect current physical and operating conditions at each public, private, and pedestrian crossing located within a proposed quiet zone.

5. ***Provide*** a Notice of Intent (NOI) to all of the railroads that operate over crossings in the proposed quiet zone, the State agency responsible for highway safety and the State agency responsible for crossing safety. The NOI must list all of the crossings in the proposed quiet zone and give a brief explanation of the tentative plans for implementing improvements within the quiet zone. Additional required elements of the NOI can be found in 49 CFR 222.43(b). The railroads and State agencies have 60 days in which to provide comments to the public authority on the proposed plan.

6. ***Alternative Safety Measures*** – If ASMs are going to be used to reduce risk, an application to FRA must be made. The application must include all of the elements provided in 49 CFR 222.39(b)(1) and copies of the application must be sent to the entities listed in 49 CFR 222.39(b)(3). They will have 60 days to provide comments to FRA on the application. FRA will provide a written decision on the application typically within three to four months after it is received.

The Quiet Zone Establishment Process continued

7. ***Determine*** how the quiet zone will be established using one of the following criteria: (Note that Options 2 through 4 will require the use of the FRA Quiet Zone Calculator available at http://safetydata.fra.dot.gov/quiet/.)

1. Every public highway-rail crossing in the proposed quiet zone is equipped with one or more SSMs.
2. The Quiet Zone Risk Index (QZRI) of the proposed quiet zone is less than or equal to the Nationwide Significant Risk Threshold (NSRT) without installing SSMs or ASMs.
3. The QZRI of the proposed quiet zone is less than or equal to the Nationwide Significant Risk Threshold (NSRT) after the installation of SSMs or ASMs.
4. The QZRI of the proposed quiet zone is less than or equal to the Risk Index with Horns (RIWH) after the installation of SSMs or ASMs.

8. ***Complete*** the installation of SSMs and ASMs and any other required improvements determined by the diagnostic team at all public, private, and pedestrian crossings within the proposed quiet zone.

9. ***Ensure*** that the required signage at each public, private, and pedestrian crossing is installed in accordance with 49 CFR Sections 222.25, 222.27, and 222.35, and the standards outlined in the Manual on Uniform Traffic Control Devices. These signs may need to be covered until the quiet zone is in effect.

10. ***Establish*** the quiet zone by providing a Notice of Quiet Zone Establishment to all of the parties that are listed in 49 CFR Section 222.43(a)(3). Be sure to include all of the required contents in the notice as listed in 49 CFR Section 222.43(d). The quiet zone can take effect no earlier than 21 days after the date on which the Notice of Quiet Zone Establishment is mailed.

*****Appendix C to the Train Horn Rule provides detailed, step by step guidance on how to create a quiet zone.*****

Required Documentation

Public authorities interested in establishing a quiet zone are required to submit certain documentation during the establishment process. FRA has provided checklists for the various documents that can be found at http://www.fra.dot.gov/Elib/Details/L03055.

FRA's Regional Grade Crossing Managers are available to provide technical assistance. A State's department of transportation or rail regulatory agency also may be able to provide assistance to communities pursuing quiet zones.

Public authorities are encouraged to consult with the agencies in their State that have responsibility for crossing safety. Some States may have additional administrative or legal requirements that must be met in order to modify a public highway-rail grade crossing.

Role of Railroads

Communities seeking to establish a quiet zone are required to send a Notice of Intent and a Notice of Quiet Zone Establishment to railroads operating over the public highway-rail grade crossings within the proposed quiet zone. Railroad officials can provide valuable input during the quiet zone establishment process and should be included on all diagnostic teams. Listed below are links to the Class I Railroads and Amtrak.

BNSF Railway (BNSF)	Canadian Pacific (CP)
CSX Transportation (CSX)	Norfolk Southern (NS)
Canadian National (CN)	Union Pacific (UP)
Kansas City Southern (KCS)	Amtrak (ATK)

FINAL NOTE

The information contained in this brochure is provided as general guidance related to the Quiet Zone Establishment Process and should not be considered as a definitive resource. FRA strongly recommends that any public authority desiring to establish quiet zones take the opportunity to review all aspects of safety along its rail corridor. Particular attention should be given to measures that prevent trespassing on railroad tracks since investments made to establish a quiet zone may be negated if the horn has to be routinely sounded to warn trespassers.

POINTS OF CONTACT

General Questions:

Inga Toye, 202-493-6305
Debra Chappell, 202-493-6018
Ron Ries, 202-493-6285

Regional Contacts

Region 1 Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont
1-800-724-5991

Region 2 Delaware, Maryland, Ohio, Pennsylvania, Virginia, West Virginia , and Washington, D.C.
1-800-724-5992

Region 3 Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee
1-800-724-5993

Region 4 Illinois, Indiana, Michigan, Minnesota, and Wisconsin
1-800-724-5040

Region 5 Arkansas, Louisiana, New Mexico, Oklahoma, and Texas
1-800-724-5995

Region 6 Colorado, Iowa, Kansas, Missouri, and Nebraska
1-800-724-5996

Region 7 Arizona, California, Nevada, and Utah
1-800-724-5997

Region 8 Alaska, Idaho, Montana, North Dakota, South Dakota, Oregon, Washington, and Wyoming
1-800-724-5998

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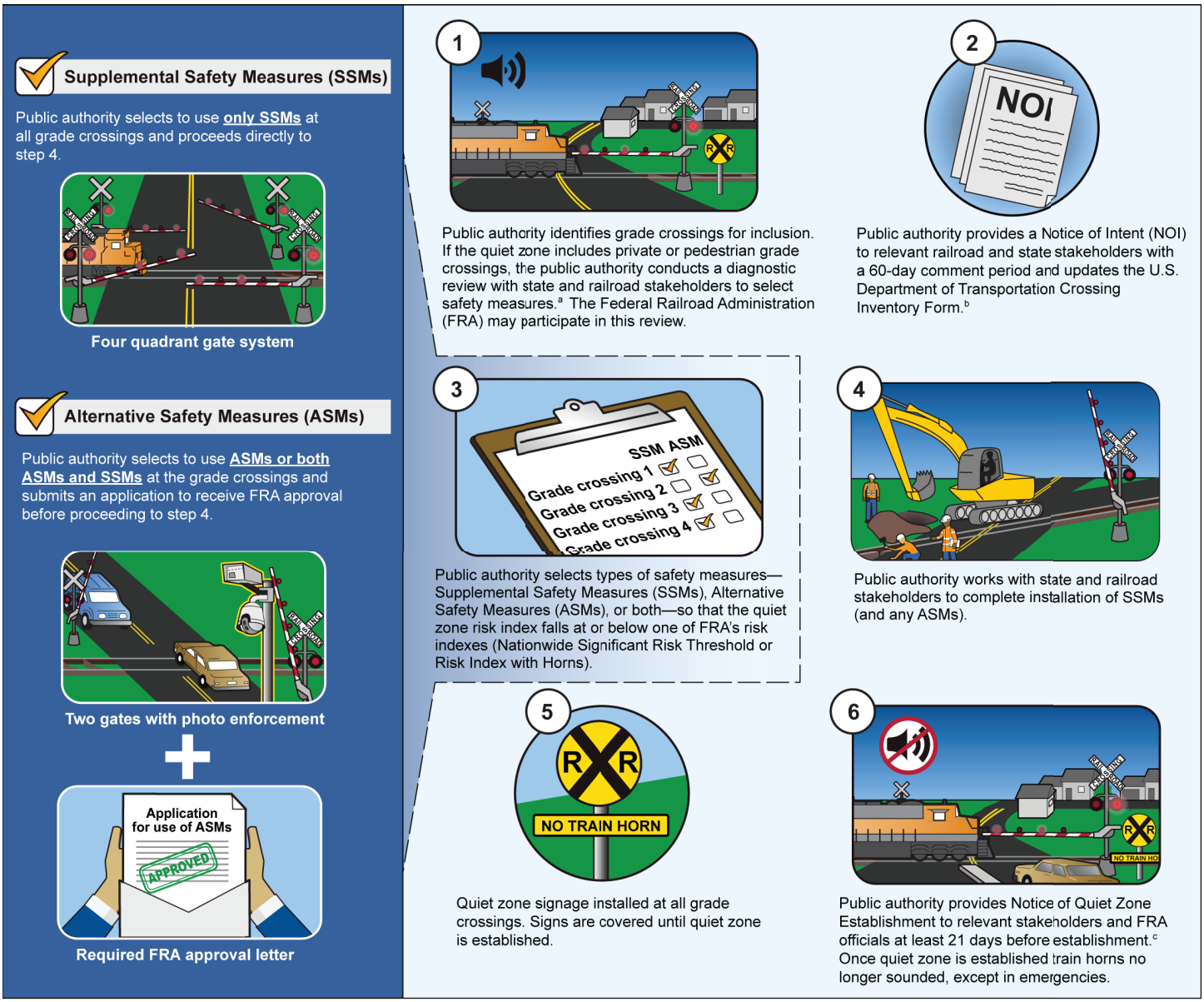
September 2013

FEDERAL RAILROAD ADMINISTRATION QUIET ZONE ESTABLISHMENT PROCESS

Process Public Authorities Follow to Establish Quiet Zones



Source: GAO analysis of FRA quiet zone process. | GAO-18-97

[a]Each pedestrian crossing or private crossing to an active commercial or industrial site must be reviewed by a diagnostic team and equipped or treated in accordance with its recommendations. The public authority must invite the state agency responsible for grade crossings' safety and all affected railroads to participate in the diagnostic review. FRA is not required to participate in diagnostic reviews.

[b]The Notice of Intent provides railroads and state agencies with an opportunity to provide comments and recommendations on the quiet zone. A complete and accurate U.S.

Rapid City Quiet Zone Assessment

FINAL

City of Rapid City, South Dakota

SRF Consulting Group, Inc. | Engineers Planners Designers

August 2018

SRF No. 11039

The Rapid City Area Metropolitan Planning Organization (MPO) provides services without regard to race, color gender, religion, national origin, age or disability, according to the provisions contained in SDCL 20-13, Title VI of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, as amended, the Americans With Disabilities Act of 1990 and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994.

Any person who has questions concerning this policy or who believes they have been discriminated against should contact the Rapid City Area MPO at 605-394-4120.

"The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."

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Introduction

Study Purpose and Background

The City of Rapid City, South Dakota (the City) is investigating options to improve safety and minimize the impacts of train horn noise at multiple at-grade highway-rail crossings throughout the community. The Federal Railroad Administration's (FRA's) Train Horn Rule, issued in June 2005, offers an opportunity to accomplish this objective. The Train Horn Rule specifies the procedures and actions necessary to establish a train horn quiet zone for at-grade highway-rail crossings.

The City retained the services of SRF Consulting Group Inc. to conduct a Quiet Zone Assessment to identify the crossing improvements required for quiet zone implementation. This assessment includes 13 rail crossings on Rapid City Pierre & Eastern (RCPE) Railroad's trackage and one crossing along the State-owned Kadoka to Rapid City mainline. A map of the corridor with the locations of the proposed quiet zone crossings is shown in Table 1.

This assessment included a field diagnostic review of the crossings with representatives from the City, the FRA, and RCPE. This report provides a summary of the quiet zone assessment results, discussion items, and consultant recommendations. The report also includes proposed crossing improvement scenarios with planning level layouts, construction cost estimates for each crossing, and a discussion of the potential for a phased quiet zone implementation.

Minimum Warning Device Requirements

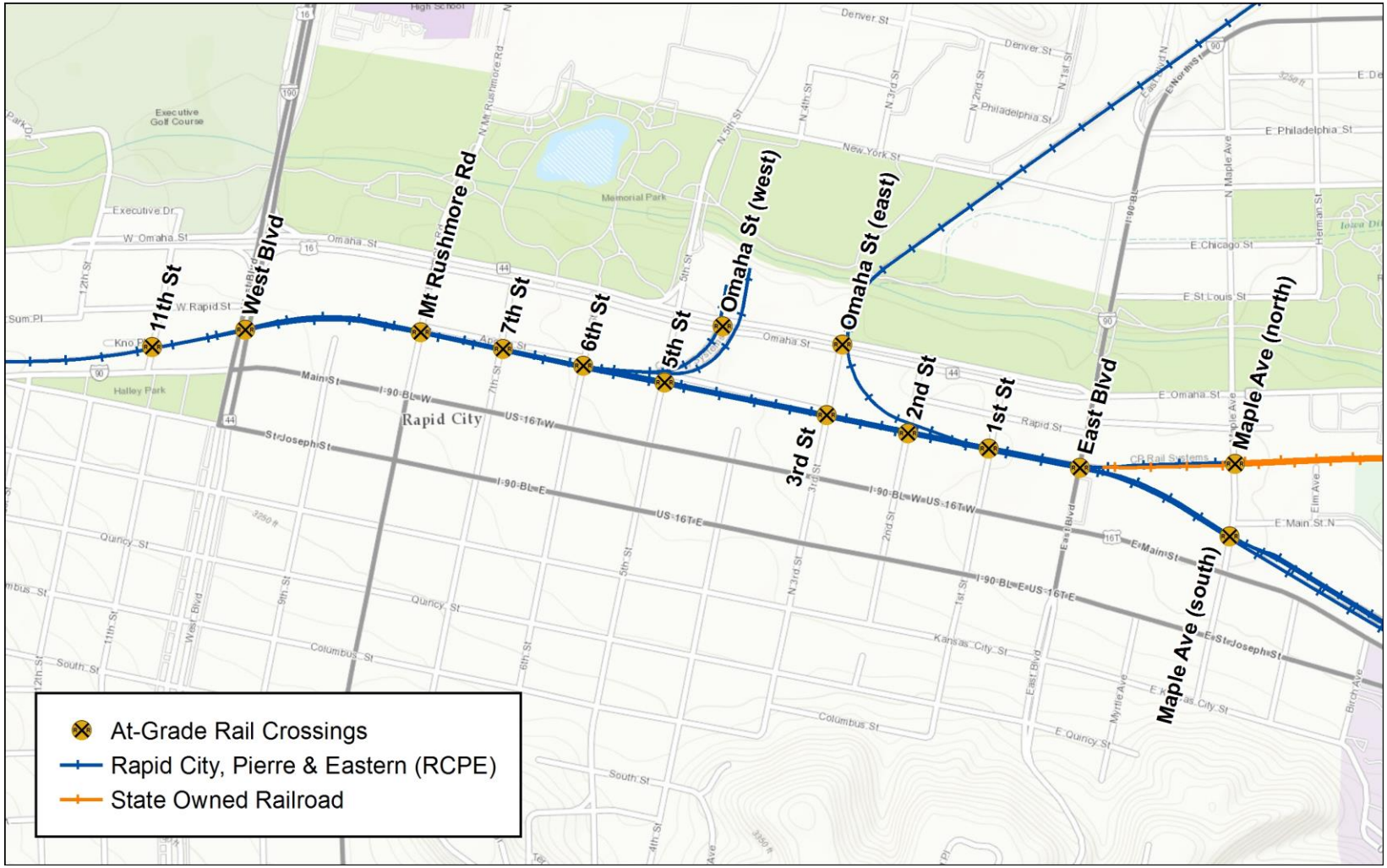
At a minimum, each public crossing in a proposed quiet zone must be equipped with entry gates and flashing lights with power-out indicators as well as constant warning time (CWT) detectors where reasonably practical. Information on the characteristics of the Rapid City crossings is summarized in Table 1 on the following page. While nearly all the crossings are equipped with flashing lights, none of the proposed quiet zone crossings are equipped with all the minimum requirements. The warning devices will need to be upgraded prior to quiet zone implementation. The locations of these crossings are also shown in Figure 1.

A summary of the discussion regarding the use of CWT detection at these crossings is included in the Diagnostic Meeting Discussion Items section of this report.

Table 1. Minimum Crossing Requirements

Crossing Name	Crossing ID	Milepost	Average Daily Traffic (ADT)	ADT Year of Collection	Gates	Flashing Lights	Constant Warning Time (CWT)
RCPE Mainline Crossings							
11th Street	190273R	100.08	1,706	2017	No	Yes	Yes
West Boulevard	190272J	99.97	13,509	2017	No	Yes	No
Mt Rushmore Road	190271C	99.77	11,498	2017	No	Yes	No
7th Street	190270V	99.68	2,200	2017	No	Yes	No
6th Street	190269B	99.59	3,200	2017	No	Yes	No
5th Street	190268U	99.45	18,365	2017	No	Yes	No
3rd Street	190266F	99.30	2,153	2017	No	Yes	No
2nd Street	190265Y	99.20	790	2017	No	Yes	No
1st Street	190264S	99.11	516	2017	No	Yes	No
East Boulevard	190263K	99.01	11,659	2017	No	Yes	No
Maple Avenue (south)	190261W	98.81	2,700	2017	No	Yes	No
Additional Crossings							
Maple Avenue (north)	190262D	98.81	2,700	2017	No	No	No
Omaha Avenue (east)	190267M	99.45	26,246	2017	No	Yes	No
Omaha Avenue (west)	190148D	649.25	26,246	2017	No	Yes	No

Figure 1. Crossing Locations



Quiet Zone Risk Calculations

The FRA evaluates potential quiet zones using a complex risk prediction and assessment calculation. The FRA's online Quiet Zone Calculator is used to calculate the risk index at each crossing. The risk calculations are based on factors such as train volumes and speed, highway traffic volumes, crossing geometry, and crash history.

The FRA determines the viability of quiet zone implementation by comparing three risk index values:

- **QZRI** – The Quiet Zone Risk Index is the average of the risk index values for each crossing in a proposed quiet zone assuming train horns are not routinely sounded. The current QZRI value of the mainline crossings (11th Street to Maple Avenue South) is **10,137** prior to the implementation of additional safety improvements.
- **RIWH** – The Risk Index With Horns is the average of the risk index values for each crossing in a proposed quiet zone assuming no additional safety improvements and the routine sounding of horns. The RIWH typically represents the existing risk levels. The current RIWH value of the mainline crossings is **6,077**.
- **NSRT** – The Nationwide Significant Risk Threshold is the average risk level of all highway-rail crossings in the United States that are equipped with flashing lights and gates and at which locomotive horns are routinely sounded. The NSRT is recalculated annually to reflect existing risk trends. The current value of the NSRT is **14,723**.

The QZRI for a proposed quiet zone is reduced through the implementation of FRA-approved Supplementary Safety Measures (SSMs) and/or Alternative Safety Measures (ASMs). A quiet zone may be implemented when SSMs and/or ASMs have been installed sufficient to bring the QZRI below either the RIWH or the NSRT. It is important to note that the QZRI and RIWH are measured as an average of the corridor as a whole rather than for individual crossings.

Reducing Risk Below National Average

If the QZRI is reduced below the NSRT alone, the quiet zone may be implemented, but the FRA will conduct an annual risk review to ensure that the quiet zone improvements still comply with the Train Horn Rule and that the QZRI is still below the NSRT. If an annual review finds that the quiet zone no longer qualifies, the public authority is given three years to install additional improvements to bring the quiet zone back into compliance. While the City has the option to implement a quiet zone by meeting the NSRT threshold, SRF encourages the City to consider alternative scenarios that will meet the RIWH threshold. By meeting the RIWH threshold, the City will avoid the annual risk review process while also making the corridor safer than the current conditions.

Reducing Risk Below Existing Levels

If the QZRI is reduced below the RIWH using SSMs at every crossing, the quiet zone may be implemented and the City must provide an update to the FRA every five years stating that the safety measures implemented to achieve the quiet zone are still in place as proposed. If the QZRI is reduced below the RIWH without the use of SSMs at every crossing, this update to the FRA must be provided every three years.

Types of Crossing Improvements

The FRA has pre-approved a variety of Supplementary Safety Measures (SSMs) to be used to improve safety at each crossing. These options and their corresponding risk reduction values are as follows:

- Closure or Grade Separation (100 percent risk reduction)
- Four-Quadrant Gates (77-82 percent risk reduction)
- Channelization Devices (e.g. Tuff Curb, Qwick Kurb) (75 percent risk reduction)
- Non-Traversable Medians (80 percent risk reduction)
- One-Way Street (82 percent risk reduction)

Examples of these improvements are shown on the following page.

Of these improvements, four quadrant gates and non-traversable medians are the most commonly used. Channelization devices are also frequently used in place of non-traversable medians where cost, narrow roadway width, or other roadway conditions must be considered. However, the channelization devices can be damaged by vehicles or during snow removal operations, necessitating ongoing monitoring and maintenance. Due to these factors, non-traversable medians were determined to be the most desirable crossing improvement option at most of the crossings in the corridor.

Non-traversable medians must meet minimum length requirements in order to be used for full risk reduction credit. The FRA mandates that medians and delineators must extend a minimum of 100 feet from the crossing gate arm. However, a 60-foot median is also acceptable if a longer median would interfere with either a public roadway or a commercial driveway. Medians that are shorter than these standards may still be used but are considered Alternative Safety Measures (ASMs) and require the submittal of a Quiet Zone Application to the FRA. Risk reduction for reduced length medians is applied on a prorated basis. For example, if the proximity of intersections limits median lengths to 30 feet instead of the minimum 60 feet, the median will be considered half as effective.

In some cases, crossing improvements may be difficult or impossible due to the configuration of roadways, accesses, and other factors. However, the Train Horn Rule does not require improvements at every crossing in a quiet zone.

Wayside Horns

In place of SSM or ASM improvements, the City may also implement wayside horns at one or more crossings. Wayside horns are stationary horn systems located at a highway rail grade crossing. These systems must meet the same decibel level requirements of standard train horns, but their stationary location creates a smaller area of noise impact. Crossings with wayside horns must also be equipped with the minimum warning device requirements of gates and flashing lights with power out indicators and CWT detection.

Four-Quadrant Gate

Non-Traversable Median

Channelization Devices

One-way Street

Closure

Diagnostic Meeting Discussion Items

As recommended by the Train Horn Rule, this assessment included an on-site diagnostic meeting with participation from key representatives from the City, the FRA, and RCPE. Note that due to inclement weather, the FRA representative was unable to attend in person, but participated via telephone for the non-field review portion of the meeting. Representatives from the South Dakota Department of Transportation (SDDOT) were also invited but did not attend. The diagnostic meeting was held on March 7, 2018. The diagnostic meeting minutes are provided in Appendix A.

Many factors and issues related to the FRA Train Horn Rule were discussed during the meeting. The following section summarizes the key points of these discussions and recommendations for how the City should proceed.

Conversion to Pedestrian-Only Crossing

As noted previously, crossing closure is one improvement option available to the City for risk reduction. During the diagnostic meeting, the City asked if the crossing could be closed only to motor vehicles, leaving a pedestrian crossing in its place. In follow-up discussions after the meeting, the FRA indicated that crossings need to be fully closed to both vehicles and pedestrians to qualify for risk reduction. The FRA noted that conversion to a pedestrian crossing would be allowed, but that the crossing should be excluded from the quiet zone risk calculations rather than being counted for risk reduction credit.

However, this guidance does not match a precise reading of the Train Horn Rule. Appendix A of the Rule outlines the requirements and effectiveness rates for the various SSM improvements. Table 2 summarizes the requirements for Permanent and Temporary crossing closures. Based on our interpretation of the requirements, conversion to a pedestrian-only crossing would completely block highway traffic from entering the crossing, thereby meeting the requirements of the Rule. To emphasize the fact that "highway traffic" does not include pedestrians, it is instructive to compare the requirements for a Permanent Closure to those for a Temporary Closure, which includes an additional requirement specific to closing adjacent pedestrian crossings. The omission of a reference to pedestrian crossings in the requirements for Permanent Closure indicates that the closure of adjacent pedestrian crossings is not required.

Based on our understanding of the Train Horn Rule requirements, conversion to a pedestrian-only crossing should qualify as a Permanent Closure. However, this will likely require further coordination with the FRA and it is possible that this interpretation may be overruled. We recommend that the City develop crossing improvement scenarios that do not rely on the risk reduction credit gained from any potential pedestrian crossing conversions.

Table 2. Permanent and Temporary Closure Requirements (emphasis added)

Permanent Closure of a Public Highway-Rail Grade Crossing	Temporary Closure of a Public Highway-Rail Grade Crossing
a. The closure system must completely block **highway traffic** from entering the grade crossing. b. Barricades and signs used for closure of the roadway shall conform to the standards contained in the MUTCD. c. The closure system must be tamper and vandal resistant to the same extent as other traffic control devices. d. Since traffic will be redistributed among adjacent crossings, the traffic counts for adjacent crossings shall be increased to reflect the diversion of traffic from the closed crossing.	a. The closure system must completely block **highway traffic** on all approach lanes to the crossing. **b. The closure system must completely block adjacent pedestrian crossings.** c. Public highway-rail grade crossings located within New Partial Quiet Zones shall be closed from 10 p.m. until 7 a.m. every day. Public highway-rail grade crossings located within Pre-Rule Partial Quiet Zones may only be closed during one period each 24 hours. d. Barricades and signs used for closure of the roadway shall conform to the standards contained in the MUTCD. e. Daily activation and deactivation of the system is the responsibility of the public authority responsible for maintenance of the street or highway crossing the railroad tracks. The public authority may provide for third party activation and deactivation; however, the public authority shall remain fully responsible for compliance with the requirements of this part. f. The system must be tamper and vandal resistant to the same extent as other traffic control devices. g. The closure system shall be equipped with a monitoring device that contains an indicator which is visible to the train crew prior to entering the crossing. The indicator shall illuminate whenever the closure device is deployed.

Potential for Constant Warning Time Waiver

Constant Warning Time (CWT) is a type of train detection required—where reasonably practical—by the FRA for all new QZ implementations. Simple train detection systems (e.g., motion sensors, track circuits) are designed to activate the crossing warning devices when they are triggered by a train a minimum of 20 seconds before the train enters the crossing. In cases where a train is approaching the crossing more slowly than usual, this warning time at the crossing will increase significantly. Motorists at the crossing may interpret the longer waiting time as a sign that the warning devices are malfunctioning and attempt to circumvent the gates. CWT addresses this issue by measuring the speed of the approaching train and adjusting the timing of the warning device activation to maintain consistent warning time durations.

During the diagnostic meeting, RCPE representatives noted that some crossings in the corridor have been equipped with CWT in the past, but that the winter road salt mixture used on roadways has caused operational issues, notably false positive signals where the warning devices activate despite no train being present. In these cases, RCPE has instead relied on the crossing island circuits for warning device activation. RCPE indicated that they would prefer to implement a phase shift overlay system for train detection in place of the CWT required by the Rule.

The Train Horn Rule notes that CWT is required "where reasonably practical." In some cases, the FRA can waive the requirement for CWT. The potential for a CWT waiver at all crossings in the corridor was discussed at the diagnostic meeting. Such waivers are typically allowed only at siding or yard tracks where operational conditions would prevent a CWT system from operating as intended. In follow-up conversations, the FRA has indicated that it is very unlikely that a CWT waiver would be granted for multiple mainline crossings. The FRA stated that it is the responsibility of the railroad to ensure that all warning device equipment is functioning correctly and noted that they have not been aware of similar road salt issues at other locations.

Quiet Zone Length Requirement

One important question for the City to consider is the precise locations to start and end the quiet zone. The Train Horn Rule says only the following about the required length/spacing of a quiet zone: "Except as provided in paragraph (a)(1)(ii) of this section, the minimum length of a New Quiet Zone or New Partial Quiet Zone established under this part shall be one half mile along the length of railroad right-of-way."

This rule has generally been interpreted to mean that there should be no regular (non-quiet) crossings within one quarter mile of the quiet zone crossings. With closely spaced crossings, a situation could occur where a train is required to sound its horn for a regular crossing before it has passed the last quiet zone crossing. The quarter mile minimum spacing is to address this issue.

In Rapid City, all the crossings are within this quarter mile spacing. However, due to low train speeds, the issue of a train sounding its horn at a quiet zone crossing is not an issue. The most closely spaced crossings are 500 feet apart and a train travelling at the 10-mph maximum timetable speed will be required to sound the horn only 294 feet prior to a crossing[1]. Therefore, the City will be able to exclude some crossings from the quiet zone in order to focus efforts in one area.

[1] 10 miles/hour x 1.47 (conversion to feet/second) x 20 seconds (required horn sounding time) = 294 feet

Crossing Improvement Options

At each crossing, the diagnostic team evaluated the site conditions to evaluate potential safety issues and identify potential crossing improvements. A summary of the potential improvement options is included below. High-level aerial layouts of the improvements and construction cost estimates are also included on the following pages. The preliminary estimates were developed for each improvement option based on SRF's previous experience with quiet zone implementation. It should be noted that many of these costs may vary based on region, season, scope of construction activity, and other factors. Many cost factors related to the signal equipment was based on information provided by RCPE. Cost estimation worksheets with additional detail on unit price and quantity estimates are included in Appendix B.

The following notes should be considered when evaluating each of the following commonly recommended improvement options:

- **Four-Quadrant Gates:** This gate system has the advantage of having minimal impact to access for adjacent properties, but in many instances it is more expensive than other available options. The costs associated with signal upgrades are determined solely by the railroad. Based on information provided by RCPE, our estimated cost for each four-quadrant installation is $350,000. It should be noted that this estimate is significantly lower than estimates provided to us from railroads on other projects. Four-quadrant gate installation costs typically range from $500,000 to $700,000. The precise costs of four-quadrant gate upgrades should be confirmed with RCPE prior to pursuing a quiet zone implementation. Four-quadrant gates are also subject to annual maintenance fees to the railroad for general maintenance and testing to ensure the equipment is functioning correctly. Annual fees of $5,000 are typical but should also be confirmed with RCPE prior to implementation.

- **Non-Traversable Medians:** These improvements prevent motorists from circumventing lowered gate arms. The Train Horn Rule dictates that medians must be at least six inches high and should be at least 100 feet long as measured from the gate arm to the last full-height section of the median. Commercial accesses should be closed or relocated if they are within the extents of the median, though some exceptions apply. In cases where a median would limit an access to right-in/right-out movements, these are labeled in the layouts with the designation, "RIRO". Medians shorter than 60 feet require the submittal of a Quiet Zone Application to the FRA. To qualify for risk reduction, some accesses near proposed medians will need to be closed or restricted.

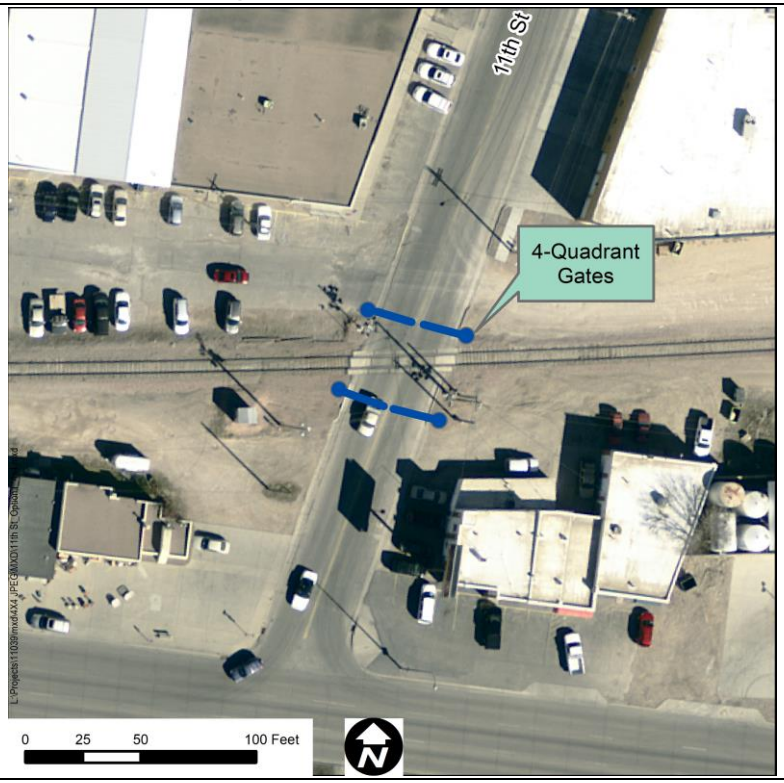
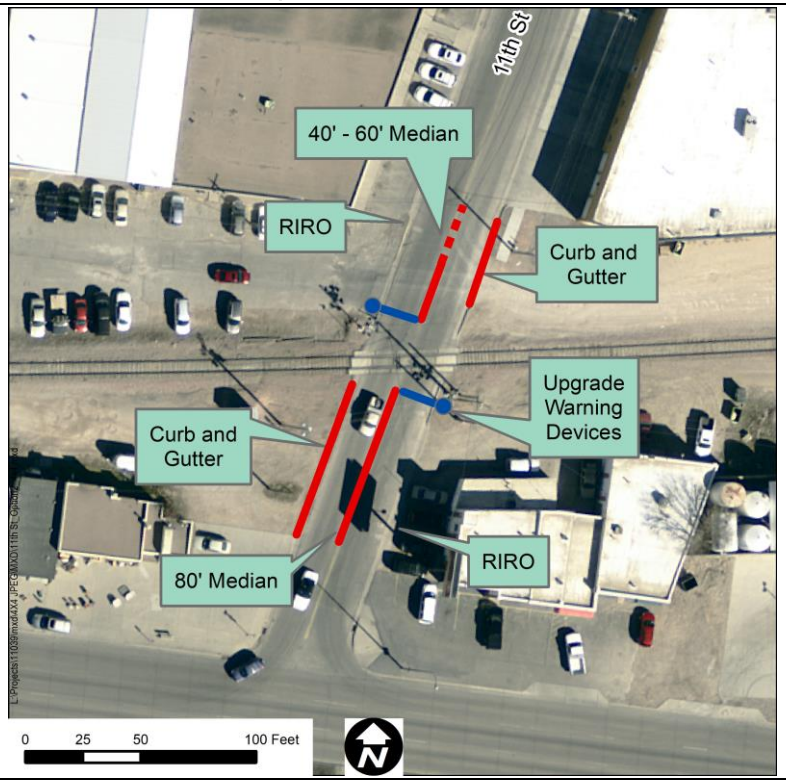
- **Wayside Horns:** These horn systems do not technically qualify as an SSM or ASM improvement, but they may be used as a substitute for train horns. For risk calculation purposes, crossings with wayside horns are removed from the calculations.

- **Closure:** Closure of a crossing will reduce risk by 100 percent but will have a significant impact on traffic circulation and access. An additional benefit is the cost savings of not upgrading the crossing with the minimum signal requirements. Incentive payments from the railroad and SDDOT may also be available. Standard closure incentive programs provide $7,500 per crossing closure from the State DOT with a $7,500 matching contribution from the railroad for a total incentive payment of $15,000.

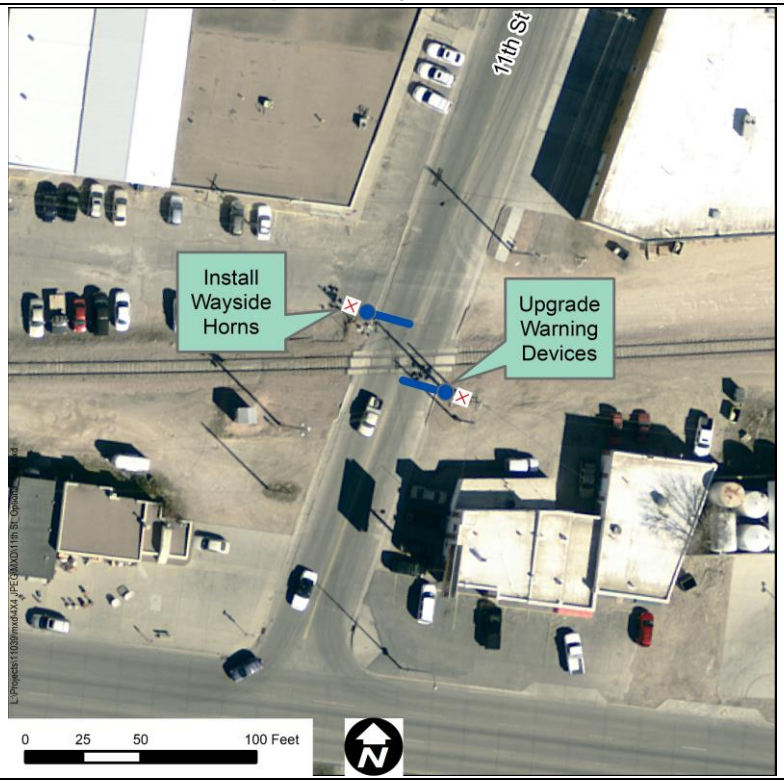
- **No Additional Improvements:** The Train Horn Rule does not require that additional improvements be installed at every crossing, so long as each is equipped with the minimum signal requirements. For each crossing, the option to install only the minimal requirements is available to the City.

The cost estimates provided in Appendix B included an itemized breakdown of the anticipated bid items and estimated unit costs for each improvement option at each crossing. The estimates are divided into crossing signal costs estimates, based on information provided by RCPE, and roadway cost estimates, based on the roadway modifications included in our proposed improvement options. The total estimates also include a 20 percent contingency as well as a 20 percent engineering fee estimate. The estimates should be considered planning-level only and may be affected by unknown site conditions or other factors that can only be identified through survey and design.

11th Street (190273R)

Option 1: Four-Quadrant Gates	Option 2: ASM Medians
	
Risk Reduction: 4,982 → 1,146 (77%) Signal Costs: $350,000 Roadway Costs: $14,256 **Total Cost: $364,256** (+$5,000 Ann. Maint.)	Risk Reduction: 4,982 → 1,661 (67%) (40' north median) Signal Costs: $250,000 Roadway Costs: $64,056 **Total Cost: $314,056**
Notes: This option has the smallest impact on access to adjacent properties but has high construction costs and ongoing annual maintenance fees.	**Notes:** This option would limit some accesses to right-in/right-out movements. The length of the north median may be extended to 60' if it is acceptable to further limit the access to the northwest property.

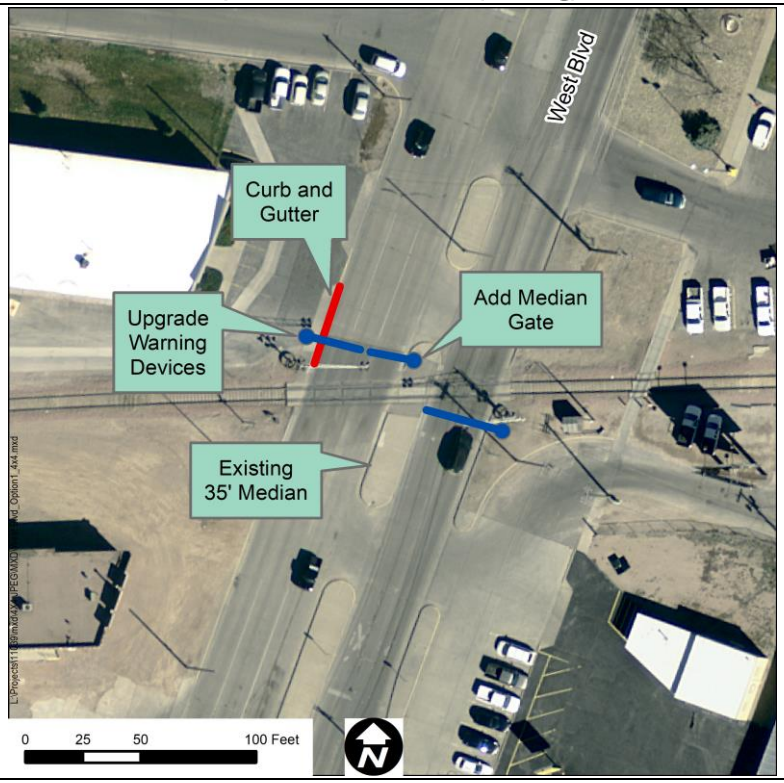
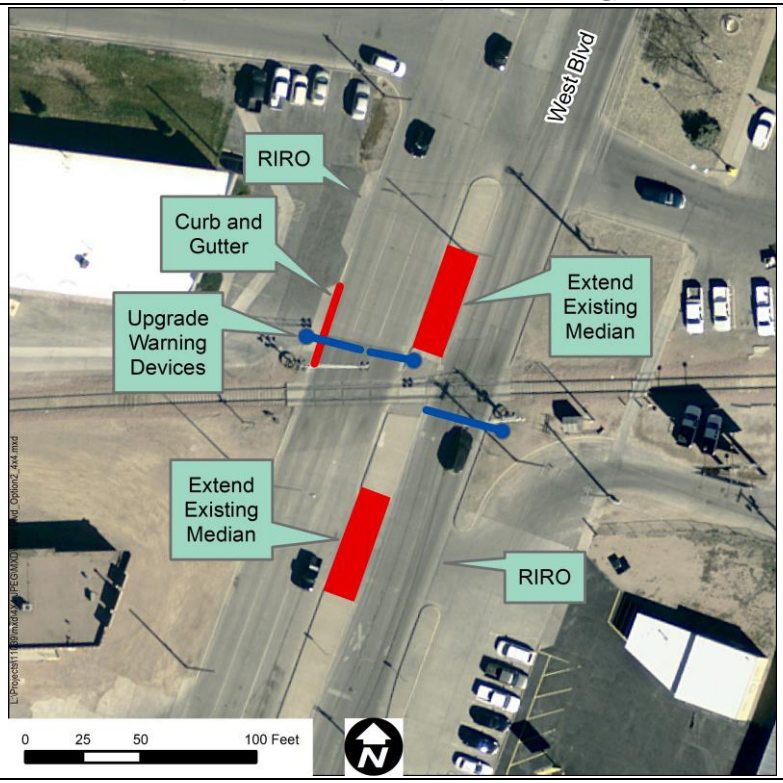
Option 3: Wayside Horns



Risk Reduction:	n/a
Signal Costs:	$280,000
Roadway Costs:	$14,256
Total Cost:	**$294,256**
	(+$5,000 Ann. Maint.)

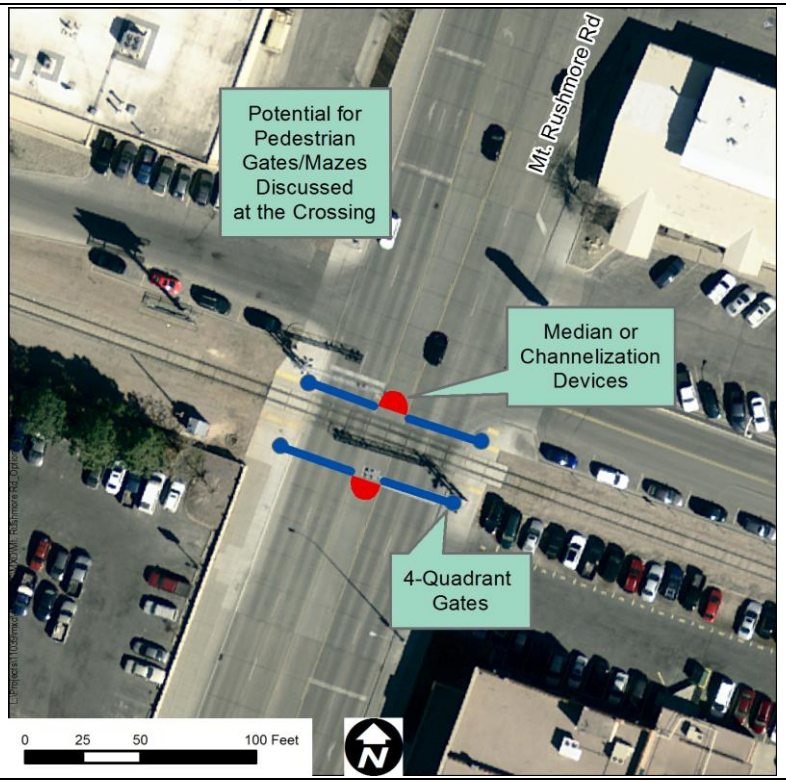
Notes: Wayside horns were discussed as an option at this crossing. However, due to the need to upgrade the warning devices, the estimated cost for this improvement is only slightly less than the other options.

West Boulevard (190272J)

Option 1: ASM Medians (Existing)	Option 2: ASM Medians (Extend Existing)
	
Risk Reduction: 18,233 → 13,979 (23%) Signal Costs: $300,000 Roadway Costs: $25,978 **Total Cost: $325,978**	Risk Reduction: 18,233 → 3,647 (80%) Signal Costs: $300,000 Roadway Costs: $57,820 **Total Cost: $357,820**
Notes: This option utilizes the existing medians for risk reduction. A median gate is required to account for the southbound roadway width. The diagnostic team recommended that the access to the northwest property be closed to not interfere with the gate operation.	**Notes:** Under this option, the median gaps are filled to result in full-length medians on each approach. This would limit accesses to right-in/right-out movements. Alternatively, if only the north median were extended, this would result in a risk reduction of 63 percent and approximately $25,000 less in roadway costs.

Mt. Rushmore Road (190271C)

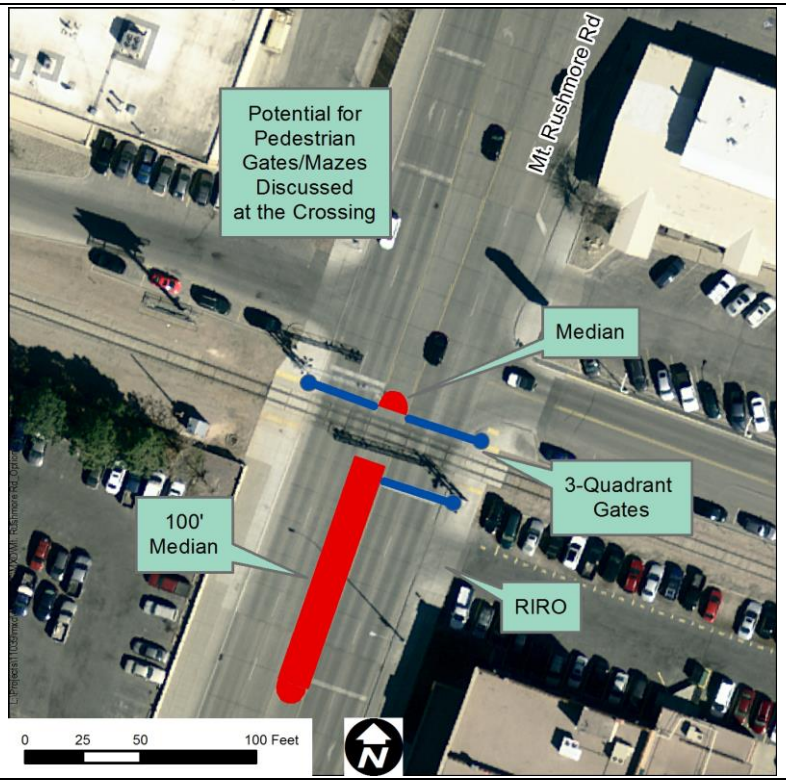
Option 1: Four-Quadrant Gates



Risk Reduction:	20,484 → 4,711 (77%)
Signal Costs:	$350,000
Roadway Costs:	$30,715
Total Cost:	**$380,715**
	(+$5,000 Ann. Maint.)

Notes: Four-quadrant gates are a suitable option at this crossing due to the conflicting intersections and accesses. Due to the roadway width, small sections of median or channelization devices will need to be installed in the center lane to qualify as an SSM improvement. Pedestrian gates and/or mazes were discussed as a potential option at this crossing but are not required by the Train Horn Rule.

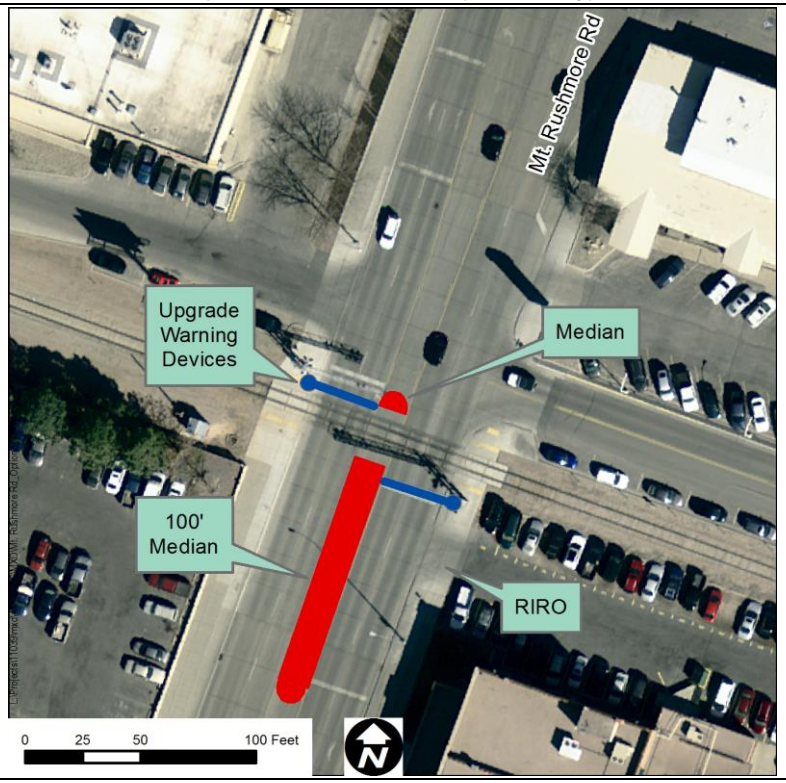
Option 2: Three-Quadrant Gates



Risk Reduction:	20,484 → 4,404 (79%)
Signal Costs:	$300,000
Roadway Costs:	$65,305
Total Cost:	**$365,305**
	(+$5,000 Ann. Maint.)

Notes: This option is a hybrid between a four-quadrant gate and non-traversable medians. This option achieves the highest risk reduction, but also carries the highest estimated cost. The access to the southeast property would be limited to right-in/right-out movements.

Option 3: ASM Medians (South Only)

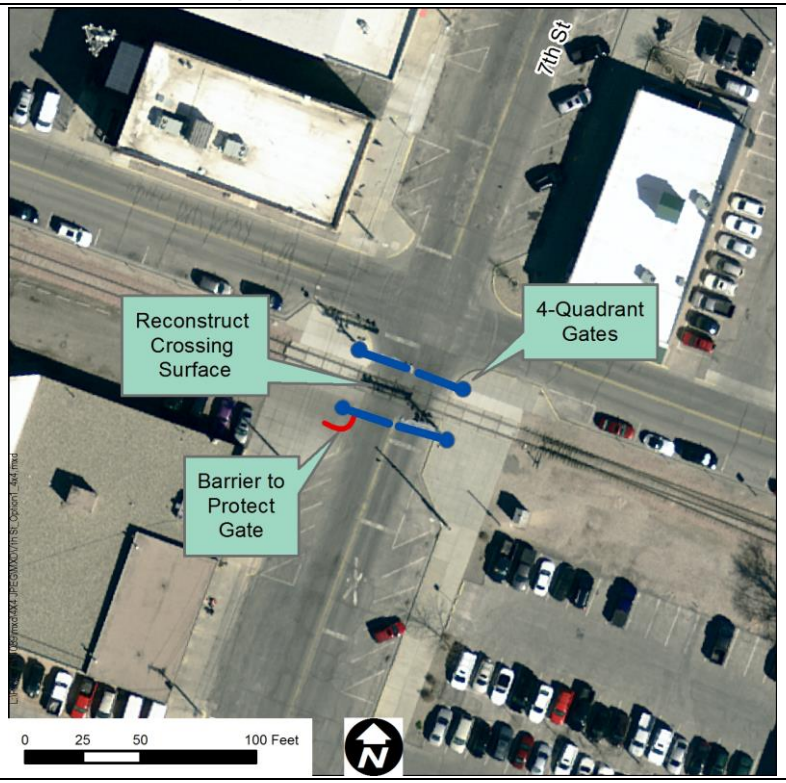


Risk Reduction:	20,484 → 12,291 (40%)
Signal Costs:	$250,000
Roadway Costs:	$65,305
Total Cost:	**$315,305**

Notes: Medians to the north of the crossing are not possible due to the proximity of Rapid Street. The access to the southeast property would also be limited to right-in/right-out movements. This option has the lowest estimated cost, but also the lowest risk reduction effect.

7th Street (190270V)

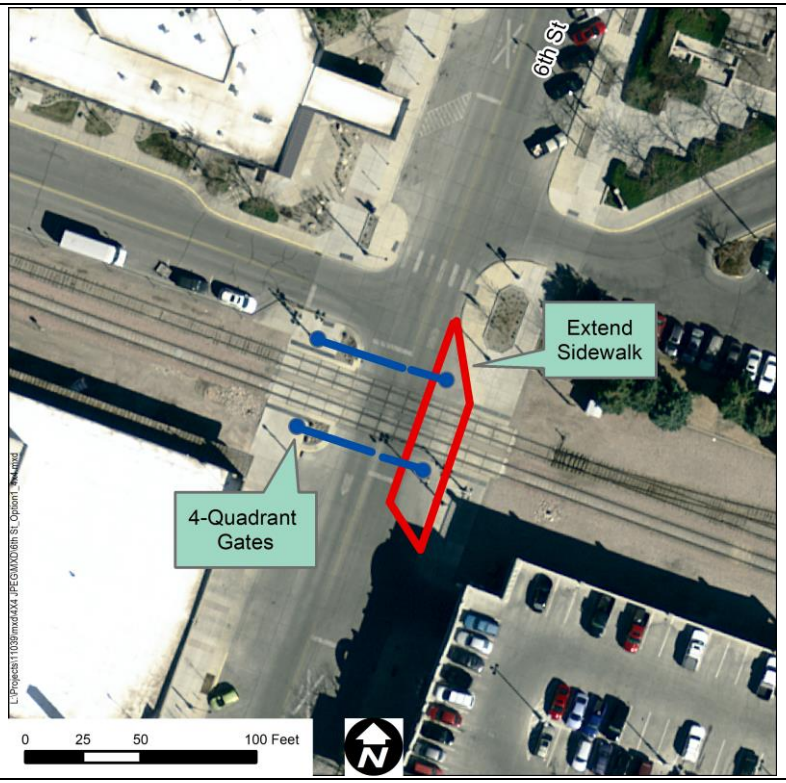
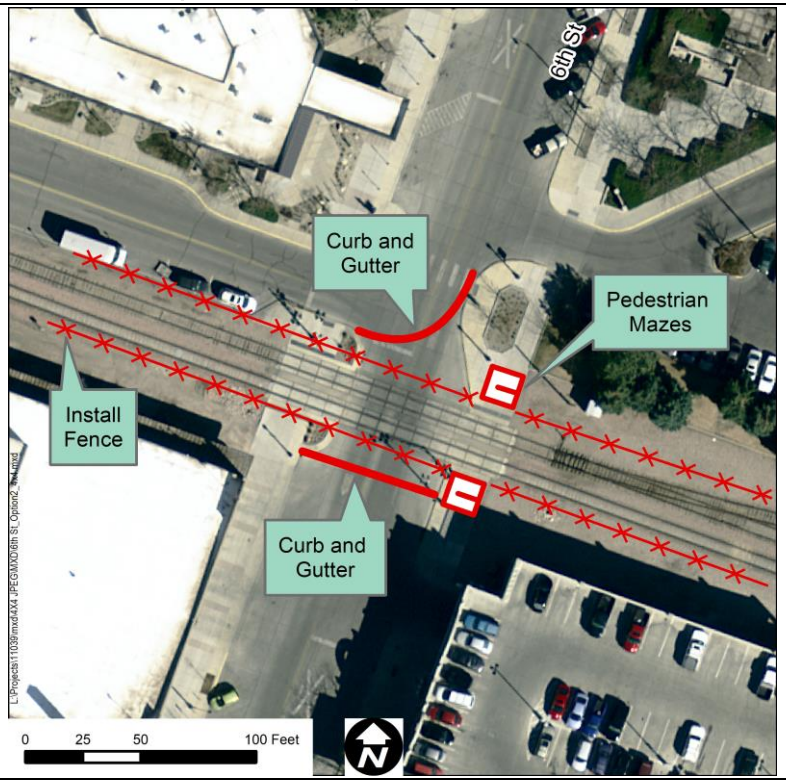
Option 1: Four-Quadrant Gates



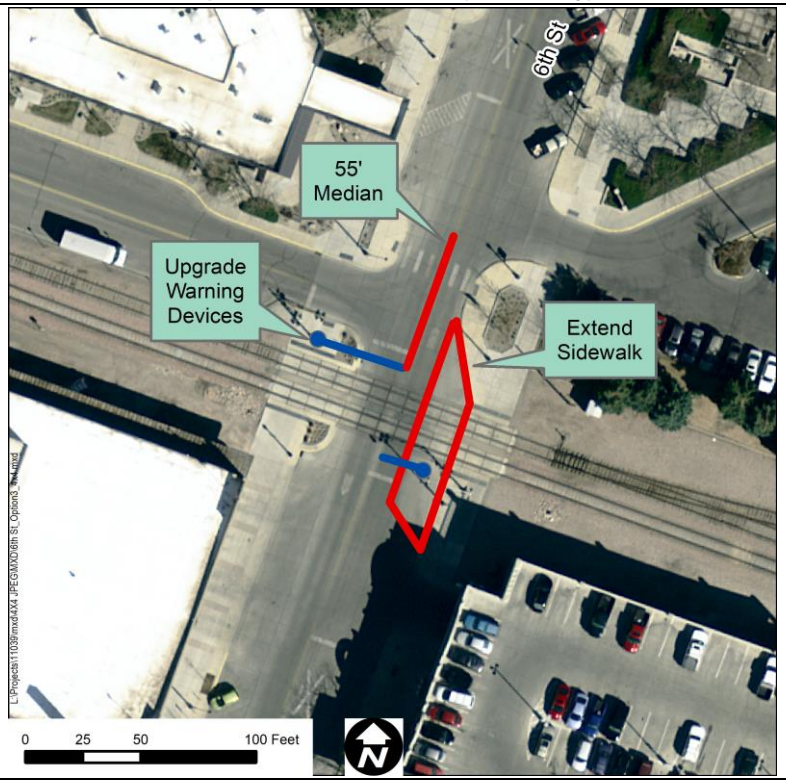
Risk Reduction:	6,007 → 1,382 (77%)
Signal Costs:	$350,000
Roadway Costs:	$98,208
Total Cost:	**$448,208**
	(+$5,000 Ann. Maint.)

Notes: Due to multiple nearby intersections and accesses, the diagnostic team determined that four-quadrant gates would be the only possible improvement option at this crossing. RCPE noted that physical protection of the southbound exit gate would be necessary to protect against trucks accessing the southwest property.

6th Street (190269B)

Option 1: Four-Quadrant Gates	Option 2: Closure/Pedestrian Conversion
	
Risk Reduction: 6,448 → 1,483 (77%) Signal Costs: $350,000 Roadway Costs: $38,886 **Total Cost: $388,886** **(+$5,000 Ann. Maint.)**	Risk Reduction: 6,448 → 0 (100%) Signal Costs: $0 Roadway Costs: $82,606 **Total Cost: $82,606**
Notes: Trail crossing gates are limited to a maximum length of 32'. To accommodate this maximum length, the east sidewalk would need to be extended into the parking lane to allow for the placement of the northbound gates.	**Notes:** This option closes the crossing to vehicles but remains open for pedestrians. The proposed pedestrian mazes force users to look down the tracks in each direction before proceeding. The additional fencing prohibits pedestrians from circumventing the mazes.

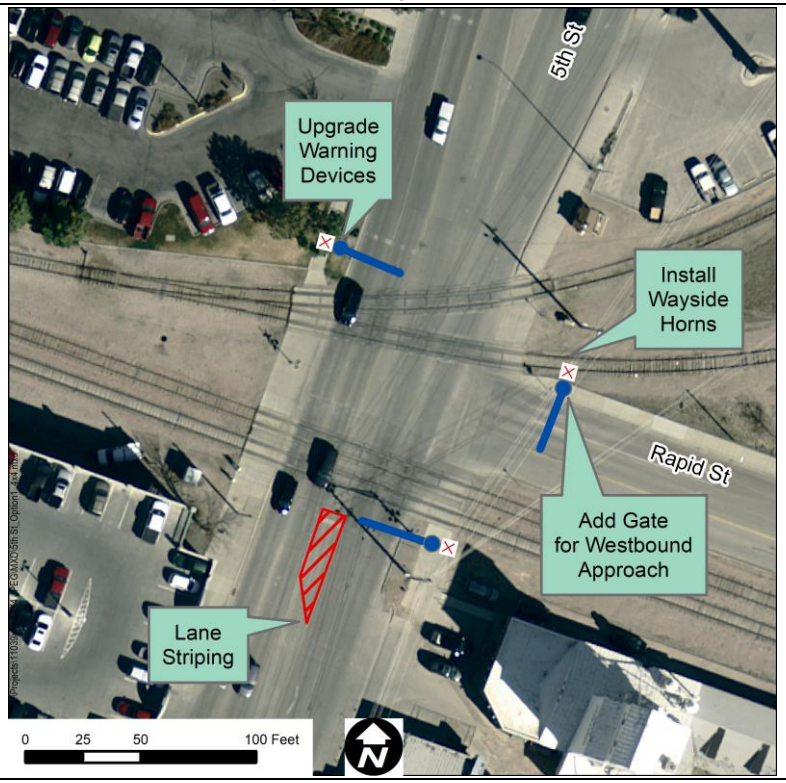
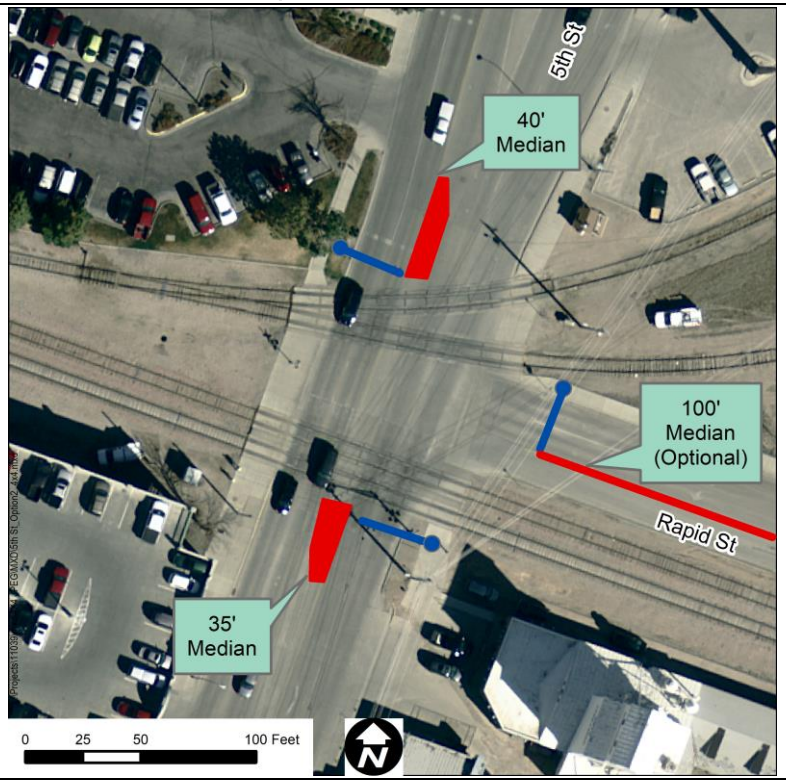
Option 3: ASM Medians (North Only)



Risk Reduction:	6,448 → 4,084 (37%)
Signal Costs:	$250,000
Roadway Costs:	$43,256
Total Cost:	**$293,256**

Notes: As with Option 1, this option extends the east sidewalk into the parking lane to allow for a northbound gate. Medians are not possible south of the crossing due to access requirements to the southwest property. The intersection with Rapid Street would also be limited to right-in/right-out movements.

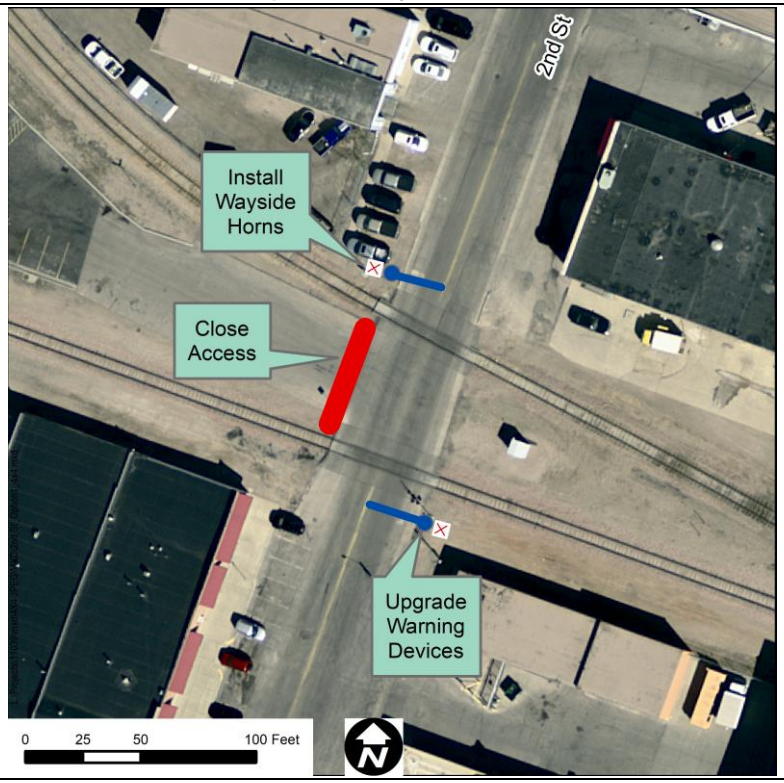
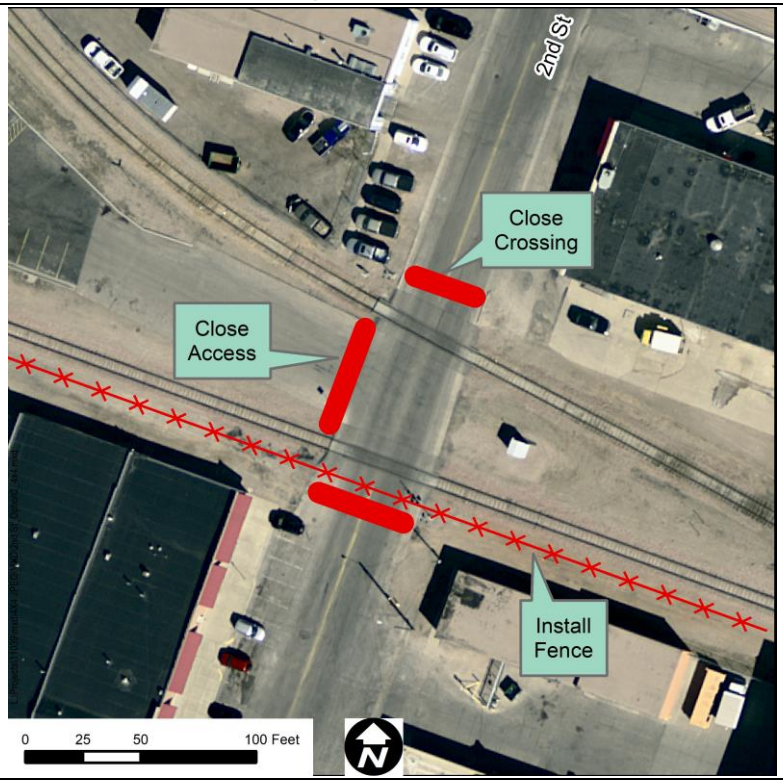
5th Street (190268U)

Option 1: Wayside Horns	Option 2: ASM Medians
	
Risk Reduction: n/a Signal Costs: $845,000 Roadway Costs: $22,176 **Total Cost: $867,176**	Risk Reduction: 19,263 → 9,631 (50%) Signal Costs: $800,000 Roadway Costs: $61,804 **Total Cost: $861,804**
Notes: The signal upgrade costs at this crossing are significantly higher due to the multiple mainline and industry tracks as well as the intersection with Rapid Street. An additional gate will be required for the Rapid Street approach.	**Notes:** This option proposes reduced-length medians on the northbound and southbound approaches. A median on the Rapid City approach is recommended but may not be not required by the FRA to meet Train Horn Rule standards.

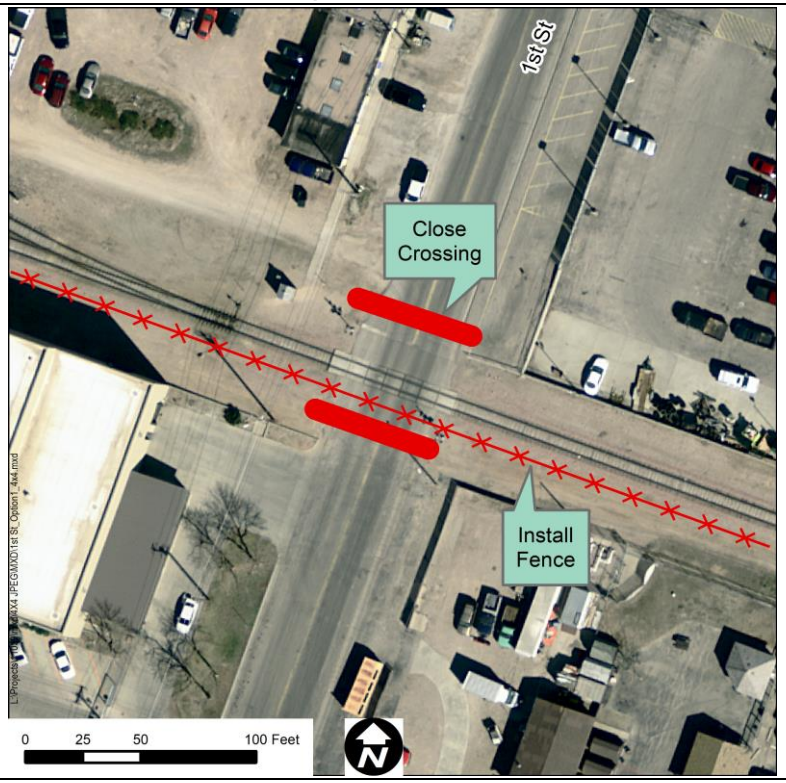
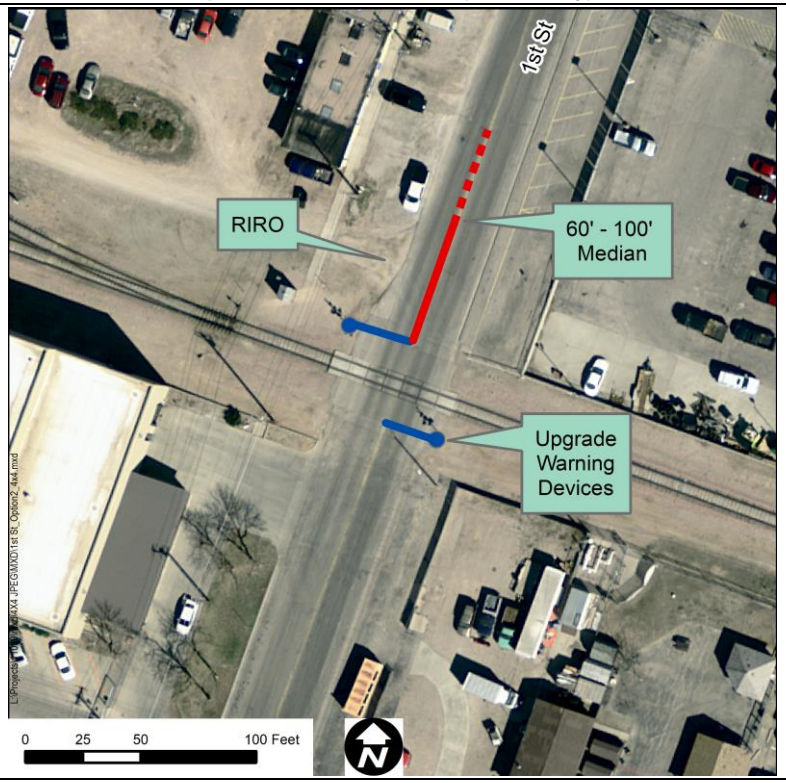
3rd Street (190266F)

Option 1: Four-Quadrant Gates	Option 2: Wayside Horns
Risk Reduction: 5,954 → 1,369 (77%) Signal Costs: $350,000 Roadway Costs: $14,256 **Total Cost: $364,256** **(+$5,000 Ann. Maint.)**	Risk Reduction: n/a Signal Costs: $280,000 Roadway Costs: $14,256 **Total Cost: $294,256** **(+$5,000 Ann. Maint.)**
Notes: Four-quadrant gates are only of the only available options due to the close proximity of intersections and commercial accesses.	**Notes:** Wayside horns were discussed as a potential option at this crossing. Alternatively, this crossing and the remainder of the crossings to the east may be excluded from the quiet zone.

2nd Street (190265Y)

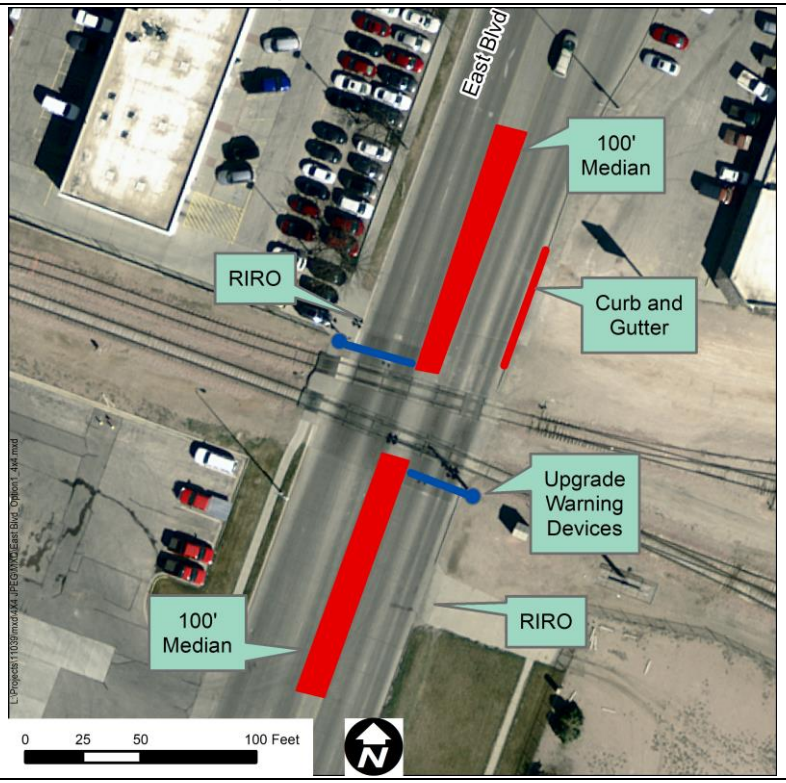
Option 1: Wayside Horns	Option 2: Closure
	
Risk Reduction: n/a Signal Costs: $280,000 Roadway Costs: $38,615 **Total Cost: $318,615** **(+$5,000 Ann. Maint.)**	Risk Reduction: 3,945 → 0 (100%) Signal Costs: $0 Roadway Costs: $59,541 **Total Cost: $59,541**
Notes: The commercial access located between the mainline and spur tracks will need to be closed under any option. Access to this property is primarily via 3rd Street.	**Notes:** TA full closure of this crossing will include closing the commercial between the tracks. The proposed fence will prohibit pedestrian access across the tracks.

1st Street (190264S)

Option 1: Closure	Option 2: ASM Medians (North Only)
	
Risk Reduction: 3,312 → 0 (100%) Signal Costs: $0 Roadway Costs: $55,845 **Total Cost: $55,845**	Risk Reduction: 3,312 → 1,987 (40%) Signal Costs: $250,000 Roadway Costs: $47,356 **Total Cost: $297,356**
Notes: This option fully closes the crossing. The proposed fence will prohibit pedestrian access across the tracks.	**Notes:** Median is not feasible south of the crossing due to the proximity of the commercial access to the southwest property. The median to the north may be between 60 and 100 feet in length depending on the need for access to the northwest property.

East Boulevard (190263K)

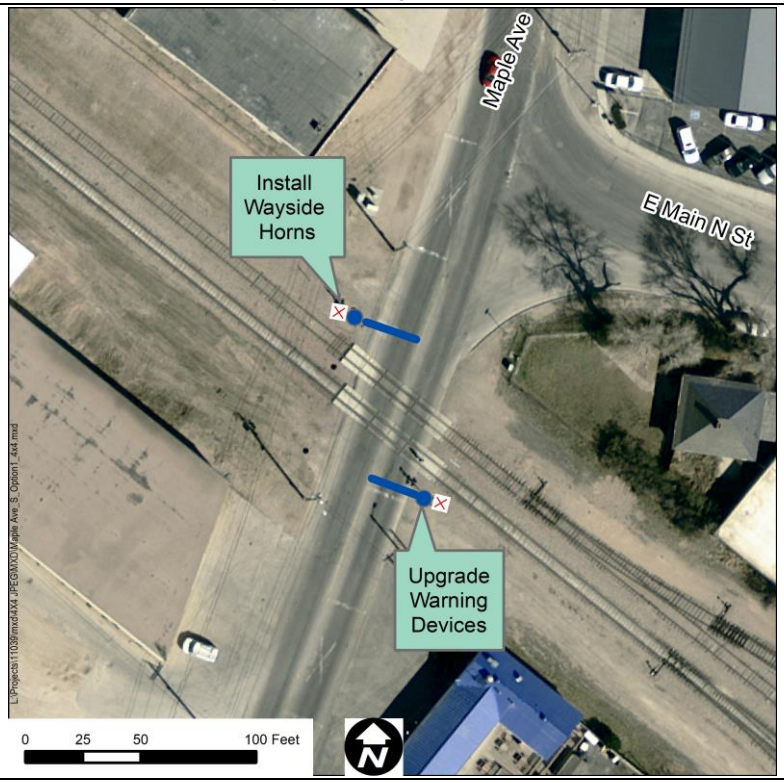
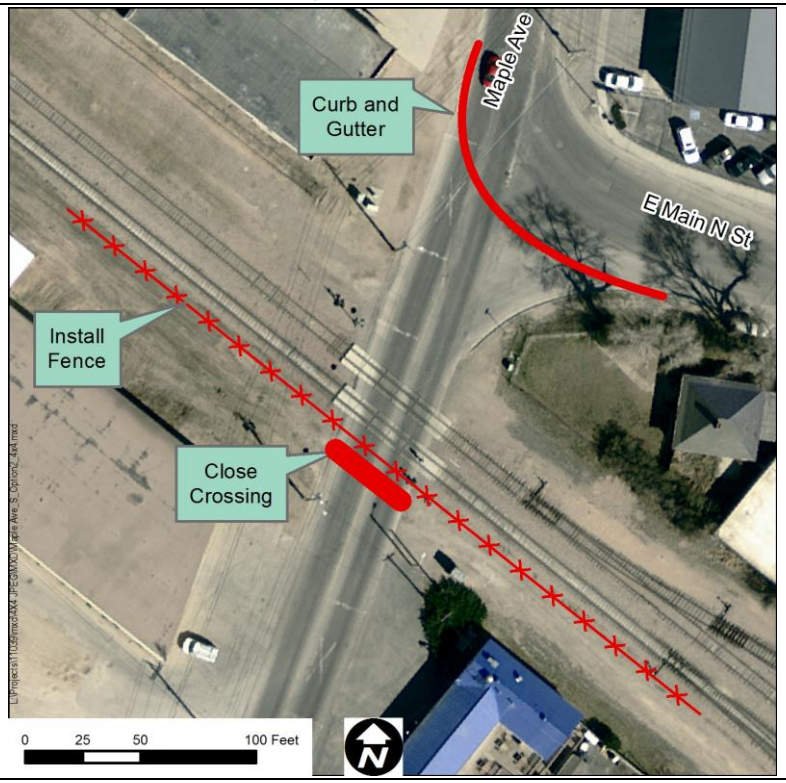
Option 1: SSM Medians



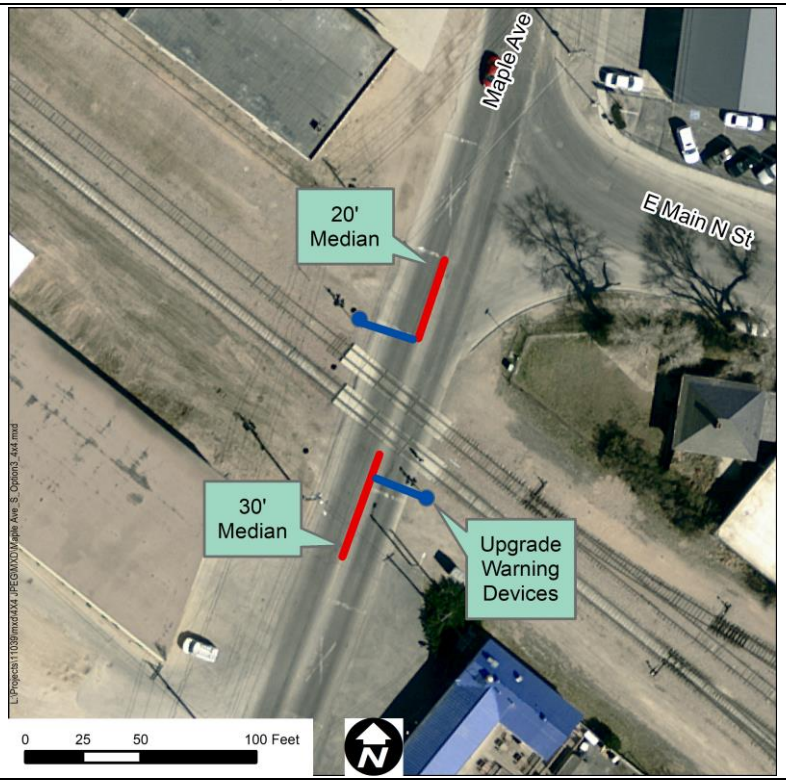
Risk Reduction:	15,797 → 3,159 (80%)
Signal Costs:	$250,000
Roadway Costs:	$101,900
Total Cost:	**$351,900**

Notes: This option proposes installing medians in the existing center lane. Commercial accesses to the northwest and southeast properties would be limited to right-in/right-out movements.

Maple Avenue (South) (190261W)

Option 1: Wayside Horns	Option 2: Closure
	
Risk Reduction: n/a Signal Costs: $280,000 Roadway Costs: $14,256 **Total Cost: $294,256** **(+$5,000 Ann. Maint.)**	Risk Reduction: 7,084 → 0 (100%) Signal Costs: $0 Roadway Costs: $65,543 **Total Cost: $65,543**
Notes: The diagnostic team discussed the use of wayside horns as a potential option at this crossing.	**Notes:** As proposed, this closure option removes the intersection of Maple Avenue and E Main Street. The addition of fencing prohibits pedestrian access.

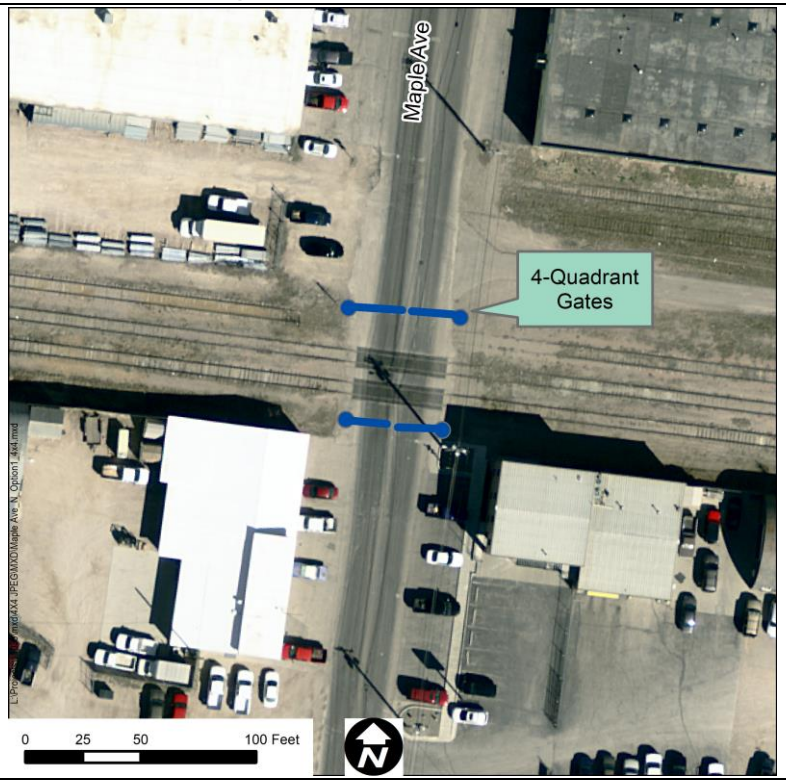
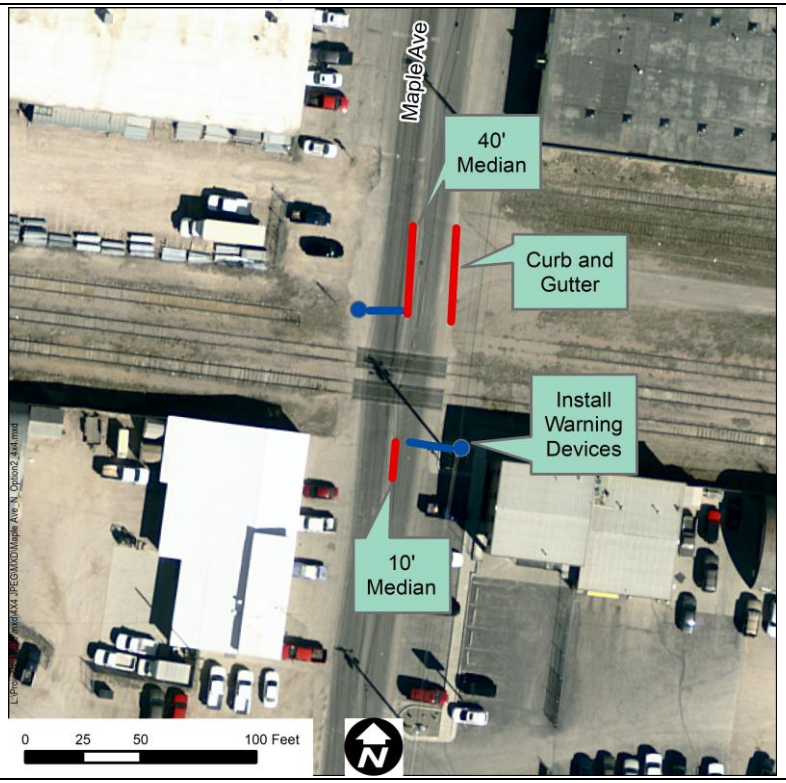
Option 3: ASM Medians



Risk Reduction:	7,084 → 4,723 (33%)
Signal Costs:	$250,000
Roadway Costs:	$35,165
Total Cost:	**$285,165**

Notes: The median lengths at this crossing are limited by the proximity of the intersection with E Main Street and the commercial accesses south of the crossing.

Maple Avenue (North) (190262D)

Option 1: Four-Quadrant Gates	Option 2: ASM Medians
	
Risk Reduction: 7,239 → 1,665 (77%) Signal Costs: $350,000 Roadway Costs: $14,256 **Total Cost: $364,256** (+$5,000 Ann. Maint.)	Risk Reduction: 7,239 → 5,574 (33%) Signal Costs: $250,000 Roadway Costs: $38,966 **Total Cost: $288,966**
Notes: Four-quadrant gates may be the most feasible option at this crossing due to the proximity of multiple commercial accesses.	**Notes:** The median lengths at this crossing are limited by the proximity of multiple commercial accesses to the north and south of the crossing.

Omaha Avenue Crossings

Omaha Avenue (West) (190148D)

Notes: Upgrading this crossing with the minimum signal requirements would be very difficult given the existing roadway configuration. Median gates would be needed on each approach due to the number of lanes.

RCPE noted that under standard operations, trains use this crossing in reverse. Therefore, horns do not sound, and the crossing movement is protected using flaggers. Due to the difficulty of improvement installation and the limited existing train horn impacts, this crossing was eliminated from consideration for quiet zone implementation.

Omaha Avenue (East) (190267M)

Notes: Like the other Omaha Avenue crossing, this crossing would be very difficult to upgrade with the minimum requirements. Median gates would be need on each approach due to the number of lanes. Additionally, the intersection with 3rd Street would likely need to be closed in order to install entry gates on the eastbound approach. Due to the difficulty of improvement installation, this crossing was eliminated from consideration for quiet zone implementation.

Crossing Improvement Scenarios

Multiple crossing improvement scenarios are available which would allow for the implementation of one or more quiet zones in Rapid City. Each scenario below was developed by selecting the various individual crossing improvement options described in the previous section. The options were selected to achieve a specific goal for each scenario such as selecting options that result in the highest levels of safety or selecting only the most cost-effective scenarios while leaving others with only the minimum crossing signal upgrades. Documentation of the quiet zone risk calculations is included in Appendix C.

Mainline Improvement Scenarios

This quiet zone corridor would extend from 11th Street to Maple Avenue (South). Rapid City crossings not included in this corridor are the two crossings at Omaha Avenue, and the Maple Avenue (North) crossing. Each of the scenarios below is compared in terms of total implementation cost, overall safety benefits, and other potential impacts to property access and traffic circulation. The relative risk levels are discussed in terms of Quiet Zone Risk Index (QZRI), Risk Index With Horns (RIWH), and Nationwide Significant Risk Threshold (NSRT). These concepts are discussed in more detail in the Introduction. A summary of the proposed scenarios is included in Table 4. Note that these sample represent only a small portion of the potential implementation options.

Baseline Scenario

The baseline scenario assumes that all the crossings in the corridor have been upgraded to meet the minimum warning device requirements but with no additional crossing improvements. The cost for these minimum upgrades is estimated at $3,300,000. The final QZRI is 10,137 compared to a RIWH of 6,077 and an NSRT of 14,723. Since the QZRI is less than the NSRT, the City has the option to implement a quiet zone using only these minimum upgrades. However, if the quiet zone is implemented under this standard, it will be subject to an annual risk review by the FRA. The QZRI may increase if a crash occurs at a crossing or if train or traffic volumes increase. If an annual review finds that the QZRI is no longer below the NSRT, the City will be required to implement additional safety improvements.

Scenario 1: High Safety

The goal of this scenario is to select the improvement options that have the greatest impact on risk reduction, regardless of cost. As each crossing, the option with the highest risk reduction score was selected. This includes the use of a wayside horn system at 2nd Street, where no alternate options are available that did not include closure of the crossing. The result is a QZRI of 3,293 compared to a RIWH of 6,449. The estimated cost of this scenario is $4,403,578.

Scenario 2: Cost Effective (Without Closures)

The combination of cost, risk reduction, and starting QZRI level result in varying levels of cost-effectiveness. Since the risk is calculated for the quiet zone as a single corridor, it is helpful and instructive to review the individual cost effectiveness of each improvement option. This will allow us to identify the options that have the greatest impact on corridor risk levels while minimizing overall costs. Table 3 summarizes the dollars per point of risk reduction for each option. The cost-effectiveness ratings range from $9.25 per risk point for the closure of Maple Avenue (South) to $224.48 per risk point for the installation of medians at 1st Street. The four closure options rank the highest due to their complete elimination of risk at the crossing. The costs for these improvements are also low since there is no need for crossing signal upgrades. Note that the wayside horn options are not included in this table. Wayside horns function as a one-for-one replacement of the train horn, and the crossing is excluded from risk calculations.

Using this ranking as a guide, this scenario proposes improvements at only four crossings: 1) Extending the existing medians at West Boulevard, 2) Three-quadrant gates at Mt. Rushmore Road, 3) Four-quadrant gates at 6th Street, and 4) Medians at East Boulevard. This scenario specifically avoids the use of closures due to their impact on access and traffic circulation. Improvements were added until the QZRI was less than the RIWH. The result is a QZRI of 5,749 compared to a RIWH of 6,077. The estimated cost of this scenario is $3,763,910.

Scenario 3: Cost Effective (With Closures)

Using the same approach as Scenario 2, this scenario selects the most cost-effective improvement options first, but also includes the closure/pedestrian conversion of the 6th Street crossing. This scenario proposes improvements at four crossings: 1) Extending the existing medians at West Boulevard, 2) Three-quadrant gates at Mt. Rushmore Road, 3) Conversion of 6th Street to a pedestrian-only crossing, and 4) Medians at East Boulevard. The result is a QZRI of 5,614 compared to a RIWH of 6,077. The estimated cost of this scenario is $3,457,630.

Table 3. Cost-Effectiveness of Proposed Improvements

Crossing Name	Improvement Option		Risk Reduction	QZRI	QZRI Reduction	Improvement Cost	Dollars / QZRI Reduction
Maple Avenue (south)	2	Closure	100%	7,084	7,084	$65,542	9.25
6th Street	2	Closure/Ped. Conversion	100%	6,448	6,448	$82,606	12.81
2nd Street	2	Closure	100%	3,945	3,945	$59,541	15.09
1st Street	1	Closure	100%	3,312	3,312	$55,845	16.86
Mt Rushmore Road	2	3-Quad Gates	79%	20,484	16,080	$365,305	22.72
Mt Rushmore Road	1	4-Quad Gates	77%	20,484	15,773	$380,715	24.14
West Boulevard	2	ASM Medians (Extend Existing)	80%	18,233	14,587	$357,820	24.53
East Boulevard	1	ASM Medians	80%	15,797	12,638	$351,900	27.85
Mt Rushmore Road	3	ASM Medians	40%	20,484	8,194	$315,305	38.48
West Boulevard	1	ASM Medians (Existing)	23%	18,233	4,254	$325,978	76.62
6th Street	1	4-Quad Gates	77%	6,448	4,965	$388,886	78.33
11th Street	1	4-Quad Gates	77%	5,954	4,584	$364,256	79.46
5th Street	2	ASM Medians	50%	19,263	9,631	$861,804	89.48
11th Street	2	ASM Medians	67%	4,982	3,321	$314,056	94.56
11th Street	1	4-Quad Gates	77%	4,982	3,836	$364,256	94.96
7th Street	1	4-Quad Gates	77%	6,007	4,625	$448,208	96.91
Maple Avenue (south)	3	ASM Medians	33%	7,084	2,361	$285,164	120.77
6th Street	3	ASM Medians	37%	6,448	2,364	$293,256	124.04
1st Street	2	ASM Medians	40%	3,312	1,325	$297,365	224.48

Scenario 4: Include Only Core Downtown Crossings

As noted earlier, the City will not need to include all crossings within the City. The quiet zone must only meet the half-mile length requirement to qualify. The City may choose to focus efforts only on those crossings with the high potential for noise impact. This scenario proposes including only the four crossings from Mt. Rushmore Road to 5th Street. This scenario also proposes improvements at only two crossings: 1) Three quadrant gates at Mt. Rushmore Road and 2) Medians at 5th Street. The result is a QZRI of 6,623 compared to a RIWH of 7,824. The estimated cost of this scenario is $1,727,109. Nearly half of this proposed cost is the minimum signal upgrades required at the 5th Street crossing.

Scenario 5: Phased Implementation

One option for the City to consider is a phased implementation of the quiet zone. For example, if the City pursues Scenario 4, quiet zones could be implemented at the other crossings at a later date. Using this approach, each quiet zone would need to qualify independently. The scenario proposes the implementation of quiet zones at three independent groupings of contiguous crossings:

- **West:** This grouping would consist of the crossings at 11th Street and West Boulevard. Improvements would include only extending the medians at West Boulevard. The result is a QZRI of 4,315 compared to a RIWH of 6,959. The estimated cost of this phase is $607,820.
- **Downtown:** This grouping and proposed improvements matches those proposed in Scenario 4. The result is a QZRI of 6,623 compared to a RIWH of 7,824. The estimated cost of this phase is $1,727,109.
- **East:** This grouping includes the remaining crossings between 3rd Street and Maple Avenue (South). The proposed improvements include: 1) Four-quadrant gates at 3rd Street, 2) Medians at East Boulevard, and 3) Medians at Maple Avenue (South). The result is a QZRI of 3,302 compared to a RIWH of 4,327. The estimated cost of this phase is $1,501,321.

The combined cost of implementing all three phases is $3,836,249.

Additional Crossings

As noted during the diagnostic team meeting, the two crossings at Omaha Avenue have unique geometric configurations that make the installation of even the minimum signal upgrades either extremely costly, or physically impossible without major modification to the surrounding roadway infrastructure. Due to these difficulties, and the limited train horn noise impact experienced at these crossings, they were eliminated from further consideration of quiet zone implementation.

Likewise, the State-owned crossing at Maple Avenue (North) experiences very few trains—typically only a few per year. Therefore, this from was also eliminated from further consideration for quiet zone implementation.

Table 4. Improvement Scenario Summary

Crossing Name	Baseline	Scenario 1: High Safety	Scenario 2: Cost-Effective (Without Closures)	Scenario 3: Cost-Effective (With Closures)	Scenario 4: Core Downtown Crossings Only
11th Street	Signals Only	4-Quad Gates	Signals Only	Signals Only	Excluded
West Boulevard	Signals Only	ASM Medians (Ext. Existing)	ASM Medians (Ext. Existing)	ASM Medians (Ext. Existing)	
Mt Rushmore Road	Signals Only	3-Quad Gates	3-Quad Gates	3-Quad Gates	3-Quad Gates
7th Street	Signals Only	4-Quad Gates	Signals Only	Signals Only	Signals Only
6th Street	Signals Only	4-Quad Gates	4-Quad Gates	Closure / Ped-Only	Signals Only
5th Street	Signals Only	ASM Medians	Signals Only	Signals Only	ASM Medians
3rd Street	Signals Only	4-Quad Gates	Signals Only	Signals Only	Excluded
2nd Street	Signals Only	Wayside Horns	Signals Only	Signals Only	
1st Street	Signals Only	ASM Medians	Signals Only	Signals Only	
East Boulevard	Signals Only	ASM Medians	ASM Medians	ASM Medians	
Maple Avenue (south)	Signals Only	ASM Medians	Signals Only	Signals Only	
Estimated Cost	$3,300,000	$4,403,578	$3,763,910	$3,457,630	$1,727,109
NSRT	14,723	14,723	14,723	14,723	14,723
RIWH	6,077	6,449	6,077	6,077	7,824
QZRI	10,137	3,293	5,749	5,614	6,623

Note: Quiet Zone Risk Index (QZRI) must be below either Nationwide Significant Risk Threshold (NSRT) or Risk Index With Horns (RIWH) to qualify for quiet zone implementation.

Next Steps and Implementation Timeline

The next step for the City is to determine the preferred crossing improvement scenario. All the proposed scenarios will qualify for quiet zone implementation. The City will need to determine which scenario provides the best balance between cost, safety, and property access and traffic circulation impacts. Once the appropriate crossing improvement options have been selected, there are several steps necessary to implement a quiet zone.

1. **Notice of Intent:** The first step in the quiet zone implementation process is the submittal of a Quiet Zone Notice of Intent (NOI) to the FRA, RCPE, SDDOT, and any other applicable stakeholders. The NOI outlines the proposed crossing improvements the City intends to use to qualify for quiet zone implementation. All recipients of the NOI are allowed 60 days to provide comment.

2. **Quiet Zone Application:** Many of the proposed improvements described in this report include the use of Alternative Safety Measure (ASM) improvements. When ASM improvements are used, a Quiet Zone Application must be submitted to the FRA following the NOI 60-day comment period. The Application is subject to a minimum 60-day comment period for all stakeholders and must then be approved by the FRA. It is estimated that this process will take nine to twelve months to complete.

3. **Construct Improvements:** Once the Quiet Zone Application has been approved, the City may begin construction of the proposed crossing improvements. The City must also install advance warning signs and pavement markings conforming to the MUTCD standards, including the installation of "No Train Horn" signs to notify the public that train horns will no longer routinely sound at these crossings.

4. **Notice of Establishment:** Once the proposed improvements have been constructed, the City must then submit a Quiet Zone Notice of Establishment (NOE) to the FRA and all applicable stakeholders. The railroad must cease the routine sounding of horns 21 days after the submittal of this final notice.

After the quiet zone is implemented, the City will be required to provide updates to the FRA on a routine basis confirming that the improvements used to qualify for the quiet zone are still in place. If the quiet zone is established by installing SSMs at every crossing, the FRA requires a letter every five years confirming the continued presence of the SSM improvements. If the quiet zone is established without SSMs at every crossing a similar letter must be submitted to the FRA every three years. If the quiet zone is established by meeting only the NSRT threshold (Baseline Scenario), FRA staff will complete an annual risk assessment to confirm that the quiet zone is still within the NSRT threshold and will notify the City of the results. If the NSRT threshold is no longer met, the City will have six months to develop an action plan for adding additional improvements to bring the quiet zone under the NSRT threshold and three years to install these improvements before the quiet zone is terminated.

Appendix A: Diagnostic Meeting Minutes

SRF No. 11039.00

RAPID CITY, SD

PRELIMINARY QUIET ZONE DIAGNOSTIC MEETING

MEETING MINUTES
9:00 A.M. March 7th, 2017

ATTENDEES:

Kip Harrington, Rapid City
Steve Frooman, Rapid City
Ritchie Nordstrom, Rapid City
Lindsey Seachris, Rapid City
Eric Braun, Rapid City
Dan Senftner, Destination Rapid City
Gary Bate, RCPE
Jim Nemec, RCPE
Shawn Engel, RCPE
Karim M, Rushmore Hotel & Suites
Cheri Bonebrake, FRA (on the phone)
Jason Hanson, Brosz Engineering
Chris Ryan, SRF Consulting Group
Eric Hodgson, SRF Consulting Group

The diagnostic meeting participants, including representatives from The City of Rapid City (the City), the Rapid City Pierre & Eastern (RCPE) Railroad, the Federal Railroad Administration (FRA), the Rushmore & Suites Hotel, Brosz Engineering, and SRF Consulting Group. The participants met at the Rapid City Public Administration building to discuss the steps necessary to implement a quiet zone in the Rapid City under the FRA's Train Horn Rule. A copy of the sign-in sheet with contact information is provided as an attachment.

The meeting began with introductions and a brief project overview. The purpose of the meeting was to investigate and gather input on the various Supplemental Safety Measure (SSM) and Alternative Safety Measure (ASM) options available at each crossing in the proposed quiet zone. The quiet zone diagnostic meeting is also an opportunity to identify other concerns or issues related to the crossing such as safety, traffic operations, construction needs, etc.

The review included fourteen public vehicular crossings:

- Eleven crossings are on the RCPE main line from Colony to Dakota Junction: 11th Street, West Boulevard, Mt. Rushmore Road, 7th Street, 6th Street, 5th Street, 3rd Street, 2nd Street, 1st Street, East Boulevard, and Maple Avenue (south)
- One crossing is on the RCPE main line from Rapid City to Pierre: Omaha street (east)
- One crossing is on spur/industry tracks serving the Dakota Mill and Grain site
- One crossing is on the State-owned Kadoka to Rapid City line: Maple Avenue (north)

Informational packets distributed to the group at the meeting included the following materials:

1. 8.5x11 aerial map showing the layout of each crossing.
2. 2-page glossary of Quiet Zone terminology and improvement option examples.
3. A blank evaluation sheet for the diagnostic team members to document the preferred SSM/ASM improvement options and other field notes.

Additional information was provided to the group via email. This included:

1. United States Department of Transportation (USDOT) grade crossing inventory forms for each of the crossings.
2. Accident/Incident Reports (No crashes have been recorded at any crossing within the past five years)
3. Preliminary Quiet Zone Risk Calculations.

Chris Ryan (SRF Consulting Group) provided an overview of the quiet zone review and implementation process. A quiet zone prevents the *routine* sounding of horns, but horns may still be sounded in cases of emergency (vehicle, pedestrian, or animal on the tracks), in cases where construction or maintenance personnel are near the track, or if the crossing warning devices are not functioning correctly.

To be eligible for quiet zone implementation, each crossing in the quiet zone must be equipped with the minimum warning device requirements of gates, flashing lights, power out indicators, and Constant Warning Time (CWT) detectors where reasonably practical. Currently, none of the crossings in the corridor are equipped with all the minimum warning devices.

Gary Bate (RCPE) expressed his concern with being able to implement Constant Warning Time (CWT) at all the crossings. At some crossings in the City where CWT was implemented, the high salt water content in the rail ballast created from salting the roads in winter caused the warning devices to activate with false positives. RCPE has since disconnected the CWT detectors and uses the grade crossing island circuits to activate the warning devices. As an alternative to CWT, the railroad would prefer to implement a Phase Shift Overlay (PSO) system if the quiet zone is implemented. RCPE believes this train detection system would be more reliable than a CWT system based on the current conditions in the corridor. While the Train Horn Rule requires the use of CWT "where reasonably practical," this may be a situation where the requirement can be waived in favor of the PSO system. This waiver would require a special request and exemption authorized by the FRA. SRF will coordinate further with FRA on the potential for a waiver of the CWT requirement in this corridor.

The cost of upgrading the warning devices is determined by the railroad but these costs will be the responsibility of the City. For high-level planning purposes, the following general cost estimates will be assumed for the project:

- 2-Quadrant Gate System with CWT Upgrade: $250,000
- 4-Quadrant Gate System with CWT Upgrade: $350,000
- It is assumed that the implementation of PSO instead of CWT will increase the above cost estimates by $50,000.

The FRA's risk calculations assume that the implementation of a quiet zone will increase the risk at each crossing. The City must then implement additional safety improvements (SSMs and/or ASMs) sufficient to bring the Quiet Zone Risk Index (QZRI) below either the Risk Index with Horns (RIWH) or the Nationwide Significant Risk Threshold (NSRT). Preliminary risk calculations show that the current risk levels are as follows:

- RIWH (existing risk levels) = 12,671
- QZRI (with no additional safety improvements) = 21,136
- NSRT = 14,723

The group discussed the various SSM and ASM improvements options available. Conversation during the diagnostic meeting focused on the following improvement options:

- **4-Quadrant Gates:** This combination of entry and exit gates fully blocks access to the crossing. It is a very effective improvement (reducing risk by 77-82 percent) and has little to no impact on adjacent accesses but is more expensive than other options.
- **Non-Traversable Medians/Channelization Devices:** These improvements prevent vehicles from circumventing the gates when they are in the down position and have an effectiveness of 75-80 percent. Per the FRA Train Horn Rule, these improvements should be 100 feet long where possible. Medians/channelization devices shorter than 60 feet, or which have commercial accesses located within 60 feet of the gate arm are considered ASMs, have a more limited risk reduction effectiveness, and require the submittal of a Quiet Zone Application to the FRA.
- **Crossing Closure:** Crossing closures effectively eliminate all crossing risk, but may have a significant impact on traffic circulation.
- **Wayside Horns:** These improvements replace the train horn with a horn at the crossing which focuses the horn sound at the roadway for a more limited horn impact. This cost of wayside horns was estimated at $30,000, but their use still requires an upgrade to a 2-quadrant gate system.

Following the diagnostic meeting, the City will work to identify the appropriate crossing improvements at each crossing necessary to qualify for a quiet zone. If the quiet zone moves forward, a Notice of Intent will be submitted to all stakeholders providing an overview of the proposed improvements. This notice is subject to a 60-day stakeholder comment period. If ASM crossing improvements are used, the FRA will require the submittal of a Quiet Zone Application. This application must be reviewed by the FRA's Railroad Safety Board and the processing time is currently estimated at six to nine months, but can sometime take up to a year. Construction of the improvements typically occurs following FRA approval of this application. Construction may occur prior to approval, but any modifications required by the FRA would need to be incorporated. Once the Quiet Zone Application is approved and the crossing improvements are installed, a Notice of Quiet Zone Establishment will be submitted to all stakeholders. The quiet zone will go into effect 21 days after this Notice.

Cheri Bonebrake (FRA) discussed the FRA's periodic recertification process wherein the City must document that the crossings still comply with the Train Horn Rule requirements. This process occurs once every one to five years depending on how the quiet zone is established.

RCPE then gave a general safety briefing and code of conduct for crossing site visits. Attendees then headed to the field to visit the crossings and to conduct a diagnostic review and to discuss potential safety measure updates for the crossings in the proposed quiet zone. A summary of the notes, discussion items, and recommended improvements for each crossing is provided in the tables on the following pages.

General comments relevant to all crossings include:

- All crossings will need to be equipped with "No Train Horn" signs if a quiet zone is implemented. Additional advance warning signage and pavement markings may be necessary to be consistent with the guidance in the Manual on Uniform Traffic Control Devices (MUTCD).
- RCPE confirmed that current train volumes at the mainline crossings are two through trains and two switching trains per day. Exceptions to these counts are noted individually below.
- RCPE also confirmed that the maximum timetable speed is 25 MPH at 11th Street, and 10 MPH at all other RCPE mainline crossings.
- In general, 4-quadrant gates and the "no treatment" options (minimum warning device upgrades only) could be used at any crossing. More detail is provided in the following sections regarding other potential improvements such as medians, channelization devices, wayside horns, and closures.
- The City may propose a quiet zone that does not include all of the crossings included in this review. The potential start and end points of the quiet zone will be reviewed to identify logical breakpoints.
- The City is not required to install additional improvements (beyond the minimum warning devices requirements) at all crossings to qualify for the quiet zone. Some crossings may be proposed to have no additional improvements installed.

11th Street

FRA Crossing ID: **190273R**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
_X_ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators _X_ Wayside Horns ___ Closure ___ One-Way Streets	___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 32', measured edge to edge of travel lane. North of the crossing, commercial accesses are immediately adjacent to the crossing on both sides of the road. South of the crossing, commercial accesses are located approximately 15' from the crossing on the east side of the road and 80' from the crossing on the west side of the road.

Reduced Length Medians are an option at this crossing but would be limited to approximately 40' to the north (approximately 60' if the east commercial access is closed) and approximately 80' to the south.

Wayside horns were discussed as a potential option at this crossing given the distance from hotels, restaurants, and other noise-sensitive land uses.

West Boulevard

FRA Crossing ID: **190272J**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets	___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	___ No Treatment

Notes:

The roadway widths at this crossing measured edge to edge of travel lane are 24' in the NB direction and 34' in the SB direction with a 13' median in the center, measured from back of curb. An existing median at the crossing extends approximately 5' to the north and 30' to the south. North of the crossing, commercial accesses are immediately adjacent to the crossing on both sides of the road. South of the crossing, commercial accesses are located approximately 35' from the crossing on the east side of the road and 115' from the crossing on the west side of the road.

The southbound roadway approach consists of three travel lanes. The maximum gate length allowable is 32', sufficient to cover two travel lanes and the necessary clearance distance to the gate mast. Therefore, under the current lane configuration, a median gate will also be required for the southbound approach. RCPE requires a minimum median width of 9' to accommodate the median gate. The extra gate will bring the estimated cost of minimum improvements at this crossing to $350,000.

Reduced Length Medians are an excellent option at this crossing given the existing median segments. The median north of the crossing could be extended to approximately 80'. The access to Kreisers Inc on the west side of the roadway would be limited to right-in/right-out (RIRO) access. Access to the property may be improved by creating an access to the north off Rapid Street. The current access would also likely need to be relocated to the north to allow sufficient clearance for the southbound gate arm. If the north median is left in its current configuration, only minimal risk reduction could be claimed.

The median south of the crossing results in approximately 30-35' of median length. Additional median length may be gained by extending the south median and limiting the commercial access on the east side of the road to RIRO access.

Mt. Rushmore Road

FRA Crossing ID: **190271C**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
_X_ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets	_X_ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 64', measured edge to edge of travel lane. North of the crossing, an intersection with Apolda Street is immediately adjacent to the crossing on both sides of the road. South of the crossing, commercial accesses are located approximately 12' from the crossing on the east side of the road.

Due to the proximity of intersecting roadways and commercial accesses, median or channelization devices will only be feasible south of the crossing. A 100' median could be installed to the south, assuming it is acceptable for the commercial access on the east side of the road to be limited to RIRO access.

A 3-quadrant gate (medians to the south with entry/exit gates to the north) was also discussed as a feasible option at this crossing.

Due to higher pedestrian traffic at this crossing, additional improvements such as pedestrian mazes or gates were discussed for potential implementation at this crossing.

7th Street — FRA Crossing ID: 190270V

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
_X_ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets	___ 3-Quadrant Gate ___ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 32', measured edge to edge of travel lane. North of the crossing, an intersection with Apolda Street is immediately adjacent to the crossing on both sides of the road. South of the crossing, commercial accesses are located immediately adjacent to the crossing on the west side of the road and approximately 130' from the crossing on the east side of the road.

Due to the proximity of intersecting roadways and commercial accesses, 4-quadrant gates are the only feasible improvement option at this crossing. However, RCPE expressed concern that the southbound exit gate may be an obstacle for trucks accessing the commercial access on the west side of the street. Physical protection of this gate (bollards, etc.) is recommended.

Grade issues at this crossing surface contribute to ponding issues. RCPE recommended that the crossing surface be reconstructed as part of any crossing improvement plan.

6th Street — FRA Crossing ID: 190269B

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
_X_ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns _X_ Closure ___ One-Way Streets	___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 30', measured edge to edge of travel lane. North of the crossing, an intersection with Apolda Street is immediately adjacent to the crossing on the west side of the road. South of the crossing, commercial accesses are located immediately adjacent to the crossing on the west side of the road and approximately 28' from the crossing on the east side of the road.

The truck turning movements required to access the commercial property in the southwest quadrant of the crossing prevent the installation of median to the south. A 50-60' median could be installed to the north, but this would limit the intersection with Apolda Street to RIRO turning movements.

The conversion of this crossing to pedestrian-only access was discussed as an option. The standard crossing closure incentive payments ($7,500 from SDDOT with a $7,500 match from RCPE) would not apply unless the crossing was closed to pedestrians also. The FRA noted that this conversion would not apply as a closure for risk calculation purposes but should instead be excluded from the risk calculations. It was recommended that pedestrian mazes be installed as part of this conversion effort.

5th Street

FRA Crossing ID: **190268U**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators _X_ Wayside Horns ___ Closure ___ One-Way Streets	___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians _X_ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway widths at this crossing measured edge to edge of travel lane are 56’ on the south side of the main line tracks and 64’ on the north side of the industry tracks. North of the crossing, commercial accesses are located approximately 51’ from the crossing on the west side of the road and 100’ from the crossing on the east side of the road. South of the crossing, commercial accesses are located approximately 40’ from the crossing on the east side of the road and 98’ from the crossing on the west side of the road. At this crossing, the rail spur serving the Dakota Mill and Grain site branches off the mainline. An intersection with Rapid Street is located on the east side of the roadway between the spur and mainline tracks. To meet the minimum warning device requirements, this approach will also need to be equipped with gates and flashing lights. Due to the need for additional gates and the complex track configuration, RCPE estimated the cost to upgrade the crossing with the minimum warning device requirements at $800,000.

Reduced length medians could be installed at this crossing with approximately 40-50’ of median to the north and 30-40’ of median to the south. Longer medians may be possible but would limit commercial accesses to RIRO access on either side of the crossing. The median to the north of the crossing may also interfere with vehicle storage for the northbound left-turn lane. A median could also be installed on the westbound approach from Rapid Street. Channelization devices may be used in lieu of median to have less impact on the current lane configuration.

Wayside horns were discussed as a potential option at this crossing given the current ambient noise levels at the crossings due to high traffic volumes.

3rd Street

FRA Crossing ID: **190266F**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
_X_ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators _X_ Wayside Horns ___ Closure ___ One-Way Streets	___ 3-Quadrant Gate ___ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 42', measured edge to edge of travel lane. North of the crossing, an intersection with Rapid Street is immediately adjacent to the crossing on the west side of the road and a commercial access is immediately adjacent to the crossing on the east side of the road. South of the crossing, a commercial access is located immediately adjacent to the crossing on the east side of the road. The railroad access on the west side of the road also appears to be used to access the commercial property.

Due to the proximity of Rapid Street and multiple commercial access, medians are not a feasible option at this crossing.

Wayside horns were discussed as a potential option at this crossing given the distance from hotels, restaurants, and other noise-sensitive land uses.

2nd Street

FRA Crossing ID: **190265Y**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators _X_ Wayside Horns _X_ Closure ___ One-Way Streets	___ 3-Quadrant Gate ___ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 36', measured edge to edge of travel lane. North of the crossing, commercial accesses are located immediately adjacent to the crossing on both sides of the road. South of the crossing, commercial accesses are located immediately adjacent to the crossing on both sides. At this crossing, the RCPE Rapid City to Pierre line branches off from the mainline. An access to a commercial property (Good Year) is located on the west side of the roadway between the two rail lines and between the warning devices. The FRA will likely require this access to be closed if a quiet zone is implemented at this crossing. The primary access to the property is via 3rd Street.

Due to low traffic volumes, this crossing is a suitable candidate for closure. This crossing has the lowest estimated risk level in the corridor. Wayside horns were discussed as a potential option at this crossing given the distance from hotels, restaurants, and other noise-sensitive land uses.

1st Street

FRA Crossing ID: **190264S**

Crossing Improvement Options (Rank Top 3):

SSMs:		ASMs:		
	___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns _X_ Closure ___ One-Way Streets		___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 36’, measured edge to edge of the travel lane. North of the crossing, a commercial access is located approximately 21’ from the crossing on the west side of the road. An additional access to an auto garage is located approximately 60’ from the crossing on the west side of the road. South of the crossing, commercial accesses are located approximately 25’ from the crossing on the west side of the road and 81’ from the crossing on the east side of the road.

Due to the truck movements required to access the commercial property in the southwest quadrant, no median is feasible south of the crossing. A 60-100’ median could be installed north of the crossing. This would restrict the commercial access in the northwest quadrant to RIRO access.

Due to low traffic volumes, this crossing is a suitable candidate for closure. This crossing has the second lowest estimated risk level in the corridor.

The City noted the presence of the Corner Stone Rescue Mission and a Rapid City Fire Station There is a need to try to limit train noise at this location due to the Mission and Fire Station Buildings in the area, which both house people.

East Boulevard

FRA Crossing ID: **190263K**

Crossing Improvement Options (Rank Top 3):

SSMs:		ASMs:		
	___ 4-Quadrant Gate _X_ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets		___ 3-Quadrant Gate ___ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 65', measured edge to edge of travel lane. North of the crossing, commercial accesses are located approximately 15 and 165' from the crossing on the west side of the road and 10-15' from the crossing on the east side of the road. South of the crossing, commercial accesses are located approximately 103' from the crossing on the west side of the road and 32' from the crossing on the east side of the road.

The current lane configuration at this crossing includes a striped center divider lane. 100' medians could be installed in the lane on each side of the roadway. The commercial access in the northeast quadrant would need to be closed by installing curb and gutter along the roadway edge. The first commercial access in the northwest quadrant would be limited to RIRO access. Additional access to this property is available approximately 165' north of this access. The access to the vacant property in the southeast quadrant would be limited to RIRO access.

Maple Ave (north)

FRA Crossing ID: **190262D**

Crossing Improvement Options (Rank Top 3):

SSMs:		ASMs:		
	_X_ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets		___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 33', measured from edge to edge of travel lane. North of the crossing, commercial accesses are located approximately 45' from the crossing on the west side of the road and immediately from the crossing on the east side of the road. South of the crossing, commercial accesses are immediately adjacent to the crossing on both sides of the road.

This crossing is part of a state-owned rail line and would be considered a separate quiet zone if implemented. Rail volumes at this crossing vary seasonally but are estimated at fewer than one train per day.

Reduced length medians may be feasible but would be limited to approximately 10-40' in length by the proximity of the commercial accesses on each side of the crossing.

Maple Ave (south)

FRA Crossing ID: **190261W**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators _X_ Wayside Horns _X_ Closure ___ One-Way Streets	___ 3-Quadrant Gate _X_ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators ___ Other (Describe):	_X_ No Treatment

Notes:

The roadway width at this crossing is 36', measured edge to edge of travel line. North of the crossing, an intersection with Main Street is located 10-15' from the crossing on the east side of the road. South of the crossing, commercial accesses are located approximately 59' from the crossing on the west side of the road and 29' from the crossing on the east side of the road.

Reduced length medians may be feasible at this crossing. Approximately 15-20' of median could be installed to the north and approximately 25-30' of median could be installed to the south. Longer medians are not possible due to the proximity of roadway intersections and commercial accesses.

Wayside horns were discussed as a potential option at this crossing given the distance from hotels, restaurants, and other noise-sensitive land uses.

RCPE noted that this crossing sees two additional switching trains (for a total of 6 trains per day) because of the siding tracks located to the east of the crossing.

Omaha Ave (west)

FRA Crossing ID: **190148D**

Crossing Improvement Options (Rank Top 3):

SSMs:	ASMs:	
___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets	___ 3-Quadrant Gate ___ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators _X_ Other (Describe): Exclude from QZ	___ No Treatment

Notes:

The roadway configuration at this crossing consists of three travel lanes in the eastbound direction and four travel lanes in the westbound direction. This configuration would require the use of median gates to meet the minimum warning device requirements. The roadway configuration prevents the use of a 4-quadrant gate system and the proximity of commercial accesses make medians unfeasible. RCPE noted that push operation into this facility is standard. Under this operation, the horn is not sounded and the move is protected by flagmen. Due to the low train volumes at the crossing, the difficulty of treatment, and the limited use of the horn at this crossing, it was determined that this crossing should be excluded from further consideration in the quiet zone study.

Omaha Ave (east)			FRA Crossing ID: **190267M**
Crossing Improvement Options (Rank Top 3):			
SSMs:	___ 4-Quadrant Gate ___ Non-Traversable Medians ___ Channelized Delineators ___ Wayside Horns ___ Closure ___ One-Way Streets	**ASMs:**	___ 3-Quadrant Gate ___ Reduced Length Non-Traversable Medians ___ Reduced Length Channelized Delineators _X_ Other (Describe): Exclude from QZ
			___ No Treatment

Notes:

The roadway configuration at this crossing consists of three travel lanes in the eastbound direction and four travel lanes in the westbound direction. This configuration would require the use of median gates to meet the minimum warning device requirements. A gate for the eastbound direction would only be feasible if the intersection with 3rd Street on the south side of the road were closed. Due to the low train volumes at the crossing and the difficulty of treatment, it was determined that this crossing should be excluded from further consideration in the quiet zone study.

Appendix B: Preliminary Construction Cost Estimates

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			11th Street					
			Option 1 Quad Gates		Option 2 ASM/SSM Medians		Option 3 Wayside Horns	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Roadway Costs								
Mobilization (10% of Roadway Costs)	LS	Varies	1	$900.00	1	$4,043.94	1	$900.00
Saw Pavement	LF	$9.00	0	$0.00	312	$140.00	0	$0.00
Removal of Concrete	SY	$15.00	0	$0.00	0	$0.00	0	$0.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	249	$2,115.56	0	$0.00
Removal of Curb & Gutter	LF	$10.00	0	$0.00	70	$700.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	19	$388.89	0	$0.00
Curb	LF	$50.00	0	$0.00	380	$19,000.00	0	$0.00
Concrete Median Pavement	SY	$65.00	0	$0.00	63	$4,095.00	0	$0.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	0	$0.00	1	$5,000.00	0	$0.00
Crossing Signal Costs								
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00	1	$250,000.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	1	$350,000.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	0	$0.00	1	$30,000.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$9,900		$44,483		$9,900
20% Contingency on Roadway Costs				$11,880		$53,380		$11,880
20% Engineering Cost on Roadway Costs				$14,256		$64,056		$14,256
		Crossing Signal Costs		**$350,000**		**$250,000**		**$280,000**
		Roadway Costs		**$14,256**		**$64,056**		**$14,256**
		Total Cost:		**$364,256**		**$314,057**		**$294,256**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			West Boulevard			
			Option 1 Ex. ASM Medians		Option 2 ASM Medians	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost
Roadway Costs						
Mobilization (10% of Roadway Costs)	LS	Varies	1	$1,640.00	1	$3,650.22
Saw Pavement	LF	$9.00	0	$0.00	160	$1,440.00
Removal of Concrete	SY	$15.00	0	$0.00	160	$2,400.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	0	$0.00
Removal of Curb & Gutter	LF	$10.00	40	$400.00	40	$400.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	36	$722.22
Curb	LF	$50.00	40	$2,000.00	200	$10,000.00
Concrete Median Pavement	SY	$65.00	0	$0.00	116	$7,540.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs						
2 Quad Gate System with CWT	LS	$250,000.00	1	$250,000.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	1	$50,000.00	1	$50,000.00
Subtotal Cost for Roadway Costs				$18,040		$40,152
20% Contingency on Roadway Costs				$21,648		$48,183
20% Engineering Cost on Roadway Costs				$25,978		$57,820
		Crossing Signal Costs		**$300,000**		**$300,000**
		Roadway Costs		**$25,978**		**$57,820**
		Total Cost:		**$325,978**		**$357,820**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			Mt. Rushmore Road					
			Option 1 Quad Gates		Option 2 ASM/SSM Medians		Option 3 ASM Median	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Roadway Costs								
Mobilization (10% of Roadway Costs)	LS	Varies	1	$1,939.10	1	$4,122.77	1	$4,122.77
Saw Pavement	LF	$9.00	104	$936.00	284	$2,556.00	284	$2,556.00
Removal of Concrete	SY	$15.00	36	$533.33	213	$3,200.00	213	$3,200.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	0	$0.00	0	$0.00
Removal of Curb & Gutter	LF	$10.00	0	$0.00	0	$0.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	8	$166.67	46	$916.67	46	$916.67
Curb	LF	$50.00	40	$2,000.00	220	$11,000.00	220	$11,000.00
Concrete Median Pavement	SY	$65.00	27	$1,755.00	147	$9,555.00	147	$9,555.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs								
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00	1	$250,000.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	1	$350,000.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	0	$0.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	1	$50,000.00	0	$0.00
Subtotal Cost for Roadway Costs				$21,330		$45,350		$45,350
20% Contingency on Roadway Costs				$25,596		$54,421		$54,421
20% Engineering Cost on Roadway Costs				$30,715		$65,305		$65,305
		Crossing Signal Costs		**$350,000**		**$300,000**		**$250,000**
		Roadway Costs		**$30,715**		**$65,305**		**$65,305**
		Total Cost:		**$380,716**		**$365,305**		**$315,305**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

Description	Unit	Unit Cost	7th Street Option 1 Quad Gates Quantity	Cost
Roadway Costs				
Mobilization (10% of Roadway Costs)	LS	Varies	1	$6,200.00
Saw Pavement	LF	$9.00	0	$0.00
Removal of Concrete	SY	$15.00	0	$0.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00
Removal of Curb & Gutter	LF	$10.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00
Curb	LF	$50.00	0	$0.00
Concrete Median Pavement	SY	$65.00	0	$0.00
Narrow Bituminous Median	SY	$175.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	20	$3,000.00
Jersey Barrier	LF	$250.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	25	$50,000.00
Railroad Protective Liability Insurance	LS	$5,000.00	0	$0.00
Crossing Signal Costs				
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00
4 Quad Gate System with CWT	LS	$350,000.00	1	$350,000.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00
Subtotal Cost for Roadway Costs				$68,200
20% Contingency on Roadway Costs				$81,840
20% Engineering Cost on Roadway Costs				$98,208
		Crossing Signal Costs		**$350,000**
		Roadway Costs		**$98,208**
		Total Cost:		**$448,208**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			6th Street					
			Option 1 Quad Gates		Option 2 Closure Conversion		Option 3 SSM Median	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Roadway Costs								
Mobilization (10% of Roadway Costs)	LS	Varies	1	$2,454.90	1	$5,215.00	1	$2,730.80
Saw Pavement	LF	$9.00	111	$999.00	0	$0.00	237	$2,133.00
Removal of Concrete	SY	$15.00	80	$1,200.00	167	$2,500.00	80	$1,200.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	0	$0.00	0	$0.00
Removal of Curb & Gutter	LF	$10.00	60	$600.00	65	$650.00	60	$600.00
Aggregate Base Course CL 5	Ton	$20.00	25	$500.00	0	$0.00	25	$500.00
Curb	LF	$50.00	65	$3,250.00	90	$4,500.00	65	$3,250.00
Concrete Median Pavement	SY	$65.00	0	$0.00	0	$0.00	25	$1,625.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	80	$4,000.00	0	$0.00	80	$4,000.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	40	$6,000.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	1	$2,500.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	400	$22,000.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs								
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00	0	$0.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	1	$350,000.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	0	$0.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$27,004		$57,365		$30,039
20% Contingency on Roadway Costs				$32,405		$68,838		$36,047
20% Engineering Cost on Roadway Costs				$38,886		$82,606		$43,256
		Crossing Signal Costs		**$350,000**		**$0**		**$250,000**
		Roadway Costs		**$38,886**		**$82,606**		**$43,256**
		Total Cost:		**$388,886**		**$82,606**		**$293,256**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			5th Street			
			Option 1 Wayside Horns		Option 2 ASM Median/Del.	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost
Roadway Costs						
Mobilization (10% of Roadway Costs)	LS	Varies	1	$1,400.00	1	$3,901.77
Saw Pavement	LF	$9.00	0	$0.00	414	$3,726.00
Removal of Concrete	SY	$15.00	0	$0.00	160	$2,400.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	44	$377.78
Removal of Curb & Gutter	LF	$10.00	0	$0.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	31	$625.00
Curb	LF	$50.00	0	$0.00	150	$7,500.00
Concrete Median Pavement	SY	$65.00	0	$0.00	100	$6,500.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	22	$3,888.89
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs				Cost Provided by RCPE		
2 Quad Gate System with CWT	LS	$250,000.00	1	$800,000.00	1	$800,000.00
4 Quad Gate System with CWT	LS	$350,000.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	1.5	$45,000.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$15,400		$42,919
20% Contingency on Roadway Costs				$18,480		$51,503
20% Engineering Cost on Roadway Costs				$22,176		$61,804
		Crossing Signal Costs		**$845,000**		**$800,000**
		Roadway Costs		**$22,176**		**$61,804**
		Total Cost:		**$867,176**		**$861,804**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			3rd Street			
			Option 1 Quad Gates		Option 2 Wayside Horns	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost
Roadway Costs						
Mobilization (10% of Roadway Costs)	LS	Varies	1	$900.00	1	$900.00
Saw Pavement	LF	$9.00	0	$0.00	0	$0.00
Removal of Concrete	SY	$15.00	0	$0.00	0	$0.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	0	$0.00
Removal of Curb & Gutter	LF	$10.00	0	$0.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	0	$0.00
Curb	LF	$50.00	0	$0.00	0	$0.00
Concrete Median Pavement	SY	$65.00	0	$0.00	0	$0.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	0	$0.00	0	$0.00
Crossing Signal Costs						
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	1	$350,000.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	1	$30,000.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$9,900		$9,900
20% Contingency on Roadway Costs				$11,880		$11,880
20% Engineering Cost on Roadway Costs				$14,256		$14,256
		Crossing Signal Costs		**$350,000**		**$280,000**
		Roadway Costs		**$14,256**		**$14,256**
		Total Cost:		**$364,256**		**$294,256**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			2nd Street			
			Option 1 Wayside Horns		Option 2 Close Crossing	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost
Roadway Costs						
Mobilization (10% of Roadway Costs)	LS	Varies	1	$2,437.78	1	$3,758.89
Saw Pavement	LF	$9.00	0	$0.00	0	$0.00
Removal of Concrete	SY	$15.00	0	$0.00	0	$0.00
Removal of Bituminous Pavement	SY	$8.50	44	$377.78	122	$1,038.89
Removal of Curb & Gutter	LF	$10.00	0	$0.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	0	$0.00
Curb	LF	$50.00	0	$0.00	0	$0.00
Concrete Median Pavement	SY	$65.00	0	$0.00	0	$0.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	40	$10,000.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	410	$22,550.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs						
2 Quad Gate System with CWT	LS	$250,000.00	1	$250,000.00	0	$0.00
4 Quad Gate System with CWT	LS	$350,000.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	1	$30,000.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$26,816		$41,348
20% Contingency on Roadway Costs				$32,179		$49,617
20% Engineering Cost on Roadway Costs				$38,614		$59,541
		Crossing Signal Costs		**$280,000**		**$0**
		Roadway Costs		**$38,614**		**$59,541**
		Total Cost:		**$318,615**		**$59,541**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			1st Street				East Boulevard	
			Option 1 Close Crossing		Option 2 ASM/SSM Median		Option 1 SSM Medians	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Roadway Costs								
Mobilization (10% of Roadway Costs)	LS	Varies	1	$3,525.56	1	$2,990.23	1	$6,433.10
Saw Pavement	LF	$9.00	0	$0.00	216	$1,944.00	464	$4,176.00
Removal of Concrete	SY	$15.00	0	$0.00	0	$0.00	356	$5,333.33
Removal of Bituminous Pavement	SY	$8.50	89	$755.56	89	$755.56	0	$0.00
Removal of Curb & Gutter	LF	$10.00	0	$0.00	0	$0.00	30	$300.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	14	$277.78	83	$1,666.67
Curb	LF	$50.00	80	$4,000.00	200	$10,000.00	430	$21,500.00
Concrete Median Pavement	SY	$65.00	0	$0.00	45	$2,925.00	267	$17,355.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	300	$16,500.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs								
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00	1	$250,000.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	0	$0.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	0	$0.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$38,781		$32,893		$70,764
20% Contingency on Roadway Costs				$46,537		$39,471		$84,917
20% Engineering Cost on Roadway Costs				$55,845		$47,365		$101,900
		Crossing Signal Costs		**$0**		**$250,000**		**$250,000**
		Roadway Costs		**$55,845**		**$47,365**		**$101,900**
		Total Cost:		**$55,845**		**$297,366**		**$351,901**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			Maple Ave (South)					
			Option 1 Wayside Horns		Option 2 Close Crossing		Option 3 ASM Medians	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Roadway Costs								
Mobilization (10% of Roadway Costs)	LS	Varies	1	$900.00	1	$4,137.78	1	$2,219.97
Saw Pavement	LF	$9.00	0	$0.00	0	$0.00	132	$1,188.00
Removal of Concrete	SY	$15.00	0	$0.00	0	$0.00	0	$0.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	444	$3,777.78	44	$377.78
Removal of Curb & Gutter	LF	$10.00	0	$0.00	60	$600.00	0	$0.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	0	$0.00	7	$138.89
Curb	LF	$50.00	0	$0.00	180	$9,000.00	100	$5,000.00
Concrete Median Pavement	SY	$65.00	0	$0.00	0	$0.00	23	$1,495.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	0	$0.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	1	$2,500.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	300	$16,500.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	0	$0.00	1	$5,000.00	1	$5,000.00
Crossing Signal Costs								
2 Quad Gate System with CWT	LS	$250,000.00	1	$250,000.00	0	$0.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	0	$0.00	0	$0.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	1	$30,000.00	0	$0.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$9,900		$45,516		$24,420
20% Contingency on Roadway Costs				$11,880		$54,619		$29,304
20% Engineering Cost on Roadway Costs				$14,256		$65,542		$35,164
		Crossing Signal Costs		**$280,000**		**$0**		**$250,000**
		Roadway Costs		**$14,256**		**$65,542**		**$35,164**
		Total Cost:		**$294,256**		**$65,543**		**$285,165**

Rapid City Quiet Zone Study

Planning-Level Cost Estimates

			Maple Ave (North)			
			Option 1 Quad Gates		Option 2 ASM Median	
Description	Unit	Unit Cost	Quantity	Cost	Quantity	Cost
Roadway Costs						
Mobilization (10% of Roadway Costs)	LS	Varies	1	$900.00	1	$2,459.97
Saw Pavement	LF	$9.00	0	$0.00	132	$1,188.00
Removal of Concrete	SY	$15.00	0	$0.00	0	$0.00
Removal of Bituminous Pavement	SY	$8.50	0	$0.00	44	$377.78
Removal of Curb & Gutter	LF	$10.00	0	$0.00	40	$400.00
Aggregate Base Course CL 5	Ton	$20.00	0	$0.00	7	$138.89
Curb	LF	$50.00	0	$0.00	140	$7,000.00
Concrete Median Pavement	SY	$65.00	0	$0.00	23	$1,495.00
Narrow Bituminous Median	SY	$175.00	0	$0.00	0	$0.00
Sidewalk Concrete 4 IN	SY	$50.00	0	$0.00	0	$0.00
Traffic Control	LS	$5,000.00	1	$5,000.00	1	$5,000.00
Ornamental Fence (Barrier)	LF	$150.00	0	$0.00	0	$0.00
Jersey Barrier	LF	$250.00	0	$0.00	0	$0.00
Landscaping	LS	$2,500.00	0	$0.00	0	$0.00
Signs and Striping	LS	$4,000.00	1	$4,000.00	1	$4,000.00
Chain Link Fence	LF	$55.00	0	$0.00	0	$0.00
Concrete Crossing Material	LF	$2,000.00	0	$0.00	0	$0.00
Railroad Protective Liability Insurance	LS	$5,000.00	0	$0.00	1	$5,000.00
Crossing Signal Costs						
2 Quad Gate System with CWT	LS	$250,000.00	0	$0.00	1	$250,000.00
4 Quad Gate System with CWT	LS	$350,000.00	1	$350,000.00	0	$0.00
Wayside Horns (2 Horns)	LS	$30,000.00	0	$0.00	0	$0.00
1 Extra Vehicle Gate	LS	$50,000.00	0	$0.00	0	$0.00
Subtotal Cost for Roadway Costs				$9,900		$27,060
20% Contingency on Roadway Costs				$11,880		$32,472
20% Engineering Cost on Roadway Costs				$14,256		$38,966
		Crossing Signal Costs		**$350,000**		**$250,000**
		Roadway Costs		**$14,256**		**$38,966**
		Total Cost:		**$364,256**		**$288,966**

Appendix C: Quiet Zone Risk Calculations

190261W MAPLE ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 007891	2700
Total trains: 4	8
Day through trains : 1	1
Total Switching Trains : 2	4
Number of main tracks: 1	1
Number of other tracks: 1	1
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190262D MAPLE AVE

Crossing Updated!

Present warn device: Crossbucks	Gates
Number of highway vehicles per day: 007891	2700
Total trains: 2	4
Day through trains : 0	2
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 30	30
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190263K EAST BOULEVARD

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 016500	11659
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 1	1
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 4	4
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190264S FIRST ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 002521	516
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190265Y SECOND ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 002272	790
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 10	10
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190266F THIRD ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 002487	2153
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 10	10
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190268U FIFTH ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 005343	18365
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 3	3
Urban(U.)/Rural(R.): U.Minor Arterial	U.Minor Arterial
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 5	5
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190269B SIXTH ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 007418	3200
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 1	1
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190270V SEVENTH ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 005178	2200
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190271C MT RUSHMORE/8TH

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 010474	11498
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 20	10
Number of highway lanes: 5	5
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190272J WEST BLVD

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 010050	13509
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Collector	U.Collector
Highways paved: Yes	Yes
Maximum timetable speed mph: 10	10
Number of highway lanes: 4	4
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

190273R 11TH ST

Crossing Updated!

Present warn device: Flashing Lights	Gates
Number of highway vehicles per day: 000863	1706
Total trains: 4	4
Day through trains : 1	1
Total Switching Trains : 2	2
Number of main tracks: 1	1
Number of other tracks: 0	0
Urban(U.)/Rural(R.): U.Local	U.Local
Highways paved: Yes	Yes
Maximum timetable speed mph: 25	25
Number of highway lanes: 2	2
Number of years accident data: 5	5
Number of accidents in accident data years: 0	0
Wayside horn:	No
Pre-Existing SSM:	No

Print This Page

Home | **Help** | **Contact** | **logoff** cryan@srfconsulting.com

Cancel | Change Scenario: RAPID CITY_53180 ▼ | Continue

Create New Zone

Manage Existing Zones

Log Off

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
190261W	**MAPLE ST**	**2700**	**Gates**	0	0	7,083.87	MODIFY
190262D	**MAPLE AVE**	**2700**	**Gates**	0	0	7,239.10	MODIFY
190263K	**EAST BOULEVARD**	**11659**	**Gates**	0	0	15,797.08	MODIFY
190264S	**FIRST ST**	**516**	**Gates**	0	0	3,311.72	MODIFY
190265Y	**SECOND ST**	**790**	**Gates**	0	0	3,944.57	MODIFY
190266F	**THIRD ST**	**2153**	**Gates**	0	0	5,953.53	MODIFY
190268U	**FIFTH ST**	**18365**	**Gates**	0	0	19,262.87	MODIFY
190269B	**SIXTH ST**	**3200**	**Gates**	0	0	6,447.90	MODIFY
190270V	**SEVENTH ST**	**2200**	**Gates**	0	0	6,006.56	MODIFY
190271C	**MT RUSHMORE/8TH**	**11498**	**Gates**	0	0	20,484.32	MODIFY
190272J	**WEST BLVD**	**13509**	**Gates**	0	0	18,233.14	MODIFY
190273R	**11TH ST**	**1706**	**Gates**	0	0	4,981.73	MODIFY

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button.To generate a spreadsheet of the values on this page, click on ASM button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

* Only Public At Grade Crossings are listed.

Click for Supplementary Safety Measures [SSM]

Click for ASM spreadsheet: **ASM** * Note:The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	RAPID CITY 2018-08-08
Type:	New 24-hour QZ
Scenario:	RAPID CITY_53180
Estimated Total Cost:	$0.00
Nationwide Significant Risk Threshold:	14723 .00
Risk Index with Horns:	5932.57
Quiet Zone Risk Index:	**9895.53**

Select

Baseline: Signal Upgrades Only

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190273R	11TH ST	4,982	2,987	0.000	4,982		0	Signals Only	$ 250,000	$ -
190272J	WEST BLVD	18,233	10,931	0.000	18,233		0	Signals Only	$ 250,000	$ -
190271C	MT RUSHMORE/8TH	20,484	12,281	0.000	20,484		0	Signals Only	$ 250,000	$ -
190270V	SEVENTH ST	6,007	3,601	0.000	6,007		0	Signals Only	$ 250,000	$ -
190269B	SIXTH ST	6,448	3,866	0.000	6,448		0	Signals Only	$ 250,000	$ -
190268U	FIFTH ST	19,263	11,548	0.000	19,263		0	Signals Only	$ 800,000	$ -
190266F	THIRD ST	5,954	3,569	0.000	5,954		0	Signals Only	$ 250,000	$ -
190265Y	SECOND ST	3,945	2,365	0.000	3,945		0	Signals Only	$ 250,000	$ -
190264S	FIRST ST	3,312	1,985	0.000	3,312		0	Signals Only	$ 250,000	$ -
190263K	EAST BOULEVARD	15,797	9,471	0.000	15,797		0	Signals Only	$ 250,000	$ -
190261W	MAPLE ST	7,084	4,247	0.000	7,084		0	Signals Only	$ 250,000	$ -
			6,077		**10,137**				**$ 3,300,000**	**$ -**
				NSRT	**14,723**					
				RIWH	**6,077**					
				QZRI	**10,137**	1.67	(QZRI / RIWH)	**TOTAL**		**$ 3,300,000**

Scenario 1: High Safety

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190273R	11TH ST	4,982	2,987	0.770	1,146		1	4-Quad Gates	$ 350,000	$ 14,256
190272J	WEST BLVD	18,233	10,931	0.800	3,647		2	ASM Medians (Extend Existing)	$ 300,000	$ 57,820
190271C	MT RUSHMORE/8TH	20,484	12,281	0.785	4,404		2	3-Quad Gates	$ 300,000	$ 65,305
190270V	SEVENTH ST	6,007	3,601	0.770	1,382		1	4-Quad Gates	$ 350,000	$ 98,208
190269B	SIXTH ST	6,448	3,866	0.770	1,483		1	4-Quad Gates	$ 350,000	$ 38,886
190268U	FIFTH ST	19,263	11,548	0.500	9,631		2	ASM Medians	$ 800,000	$ 61,804
190266F	THIRD ST	5,954	3,569	0.770	1,369		1	4-Quad Gates	$ 350,000	$ 14,256
190265Y	SECOND ST						1	Wayside Horns	$ 280,000	$ 38,614
190264S	FIRST ST	3,312	1,985	0.400	1,987		2	ASM Medians	$ 250,000	$ 47,365
190263K	EAST BOULEVARD	15,797	9,471	0.800	3,159		1	ASM Medians	$ 250,000	$ 101,900
190261W	MAPLE ST	7,084	4,247	0.333	4,723		3	ASM Medians	$ 250,000	$ 35,164
			6,449		**3,293**				**$ 3,830,000**	**$ 573,578**
				NSRT	**14,723**					
				RIWH	**6,449**					
				QZRI	**3,293**	0.51	(QZRI / RIWH)	**TOTAL**		**$ 4,403,578**

Scenario 2: Cost-Effective (Without Closures)

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190273R	11TH ST	4,982	2,987	0.000	4,982		0	Signals Only	$ 250,000	$ -
190272J	WEST BLVD	18,233	10,931	0.800	3,647		2	ASM Medians (Extend Existing)	$ 300,000	$ 57,820
190271C	MT RUSHMORE/8TH	20,484	12,281	0.785	4,404		2	3-Quad Gates	$ 300,000	$ 65,305
190270V	SEVENTH ST	6,007	3,601	0.000	6,007		0	Signals Only	$ 250,000	$ -
190269B	SIXTH ST	6,448	3,866	0.770	1,483		1	4-Quad Gates	$ 350,000	$ 38,886
190268U	FIFTH ST	19,263	11,548	0.000	19,263		0	Signals Only	$ 800,000	$ -
190266F	THIRD ST	5,954	3,569	0.000	5,954		0	Signals Only	$ 250,000	$ -
190265Y	SECOND ST	3,945	2,365	0.000	3,945		0	Signals Only	$ 250,000	$ -
190264S	FIRST ST	3,312	1,985	0.000	3,312		0	Signals Only	$ 250,000	$ -
190263K	EAST BOULEVARD	15,797	9,471	0.800	3,159		1	ASM Medians	$ 250,000	$ 101,900
190261W	MAPLE ST	7,084	4,247	0.000	7,084		0	Signals Only	$ 250,000	$ -
			6,077		**5,749**				**$ 3,500,000**	**$ 263,910**
				NSRT	**14,723**					
				RIWH	**6,077**					
				QZRI	**5,749**	0.95	(QZRI / RIWH)	**TOTAL**		**$ 3,763,910**

Scenario 3: Cost-Effective (With Closures)

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190273R	11TH ST	4,982	2,987	0.000	4,982		0	Signals Only	$ 250,000	$ -
190272J	WEST BLVD	18,233	10,931	0.800	3,647		2	ASM Medians (Extend Existing)	$ 300,000	$ 57,820
190271C	MT RUSHMORE/8TH	20,484	12,281	0.785	4,404		2	3-Quad Gates	$ 300,000	$ 65,305
190270V	SEVENTH ST	6,007	3,601	0.000	6,007		0	Signals Only	$ 250,000	$ -
190269B	SIXTH ST	6,448	3,866	1.000	-		2	Closure/Pedestrian Conversion	$ -	$ 82,606
190268U	FIFTH ST	19,263	11,548	0.000	19,263		0	Signals Only	$ 800,000	$ -
190266F	THIRD ST	5,954	3,569	0.000	5,954		0	Signals Only	$ 250,000	$ -
190265Y	SECOND ST	3,945	2,365	0.000	3,945		0	Signals Only	$ 250,000	$ -
190264S	FIRST ST	3,312	1,985	0.000	3,312		0	Signals Only	$ 250,000	$ -
190263K	EAST BOULEVARD	15,797	9,471	0.800	3,159		1	ASM Medians	$ 250,000	$ 101,900
190261W	MAPLE ST	7,084	4,247	0.000	7,084		0	Signals Only	$ 250,000	$ -
			6,077		**5,614**				**$ 3,150,000**	**$ 307,630**
				NSRT	**14,723**					
				RIWH	**6,077**					
				QZRI	**5,614**	0.92	(QZRI / RIWH)	**TOTAL**		**$ 3,457,630**

Scenario 4: Core Downtown Crossings Only

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190273R	11TH ST									
190272J	WEST BLVD									
190271C	MT RUSHMORE/8TH	20,484	12,281	0.785	4,404		2	3-Quad Gates	$ 300,000	$ 65,305
190270V	SEVENTH ST	6,007	3,601	0.000	6,007		0	Signals Only	$ 250,000	$ -
190269B	SIXTH ST	6,448	3,866	0.000	6,448		0	Signals Only	$ 250,000	$ -
190268U	FIFTH ST	19,263	11,548	0.500	9,631		2	ASM Medians	$ 800,000	$ 61,804
190266F	THIRD ST									
190265Y	SECOND ST									
190264S	FIRST ST									
190263K	EAST BOULEVARD									
190261W	MAPLE ST									
			7,824		**6,623**				**$ 1,600,000**	**$ 127,109**
				NSRT	**14,723**					
				RIWH	**7,824**					
				QZRI	**6,623**	0.85	(QZRI / RIWH)	**TOTAL**		**$ 1,727,109**

Scenario 5: Phased Implementation

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190273R	11TH ST	4,982	2,987	0.000	4,982		0	Signals Only	$ 250,000	$ -
190272J	WEST BLVD	18,233	10,931	0.800	3,647		2	ASM Medians (Extend Existing)	$ 300,000	$ 57,820
			6,959		**4,315**				**$ 550,000**	**$ 57,820**
				NSRT	**14,723**					
				RIWH	**6,959**					
				QZRI	**4,315**	0.62	(QZRI / RIWH)	**TOTAL**		**$ 607,820**

Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190271C	MT RUSHMORE/8TH	20,484	12,281	0.785	4,404		2	3-Quad Gates	$ 300,000	$ 65,305
190270V	SEVENTH ST	6,007	3,601	0.000	6,007		0	Signals Only	$ 250,000	$ -
190269B	SIXTH ST	6,448	3,866	0.000	6,448		0	Signals Only	$ 250,000	$ -
190268U	FIFTH ST	19,263	11,548	0.500	9,631		2	ASM Medians	$ 800,000	$ 61,804
			7,824		**6,623**				**$ 1,600,000**	**$ 127,109**
				NSRT	**14,723**					
				RIWH	**7,824**					
				QZRI	**6,623**	0.85	(QZRI / RIWH)	**TOTAL**		**$ 1,727,109**

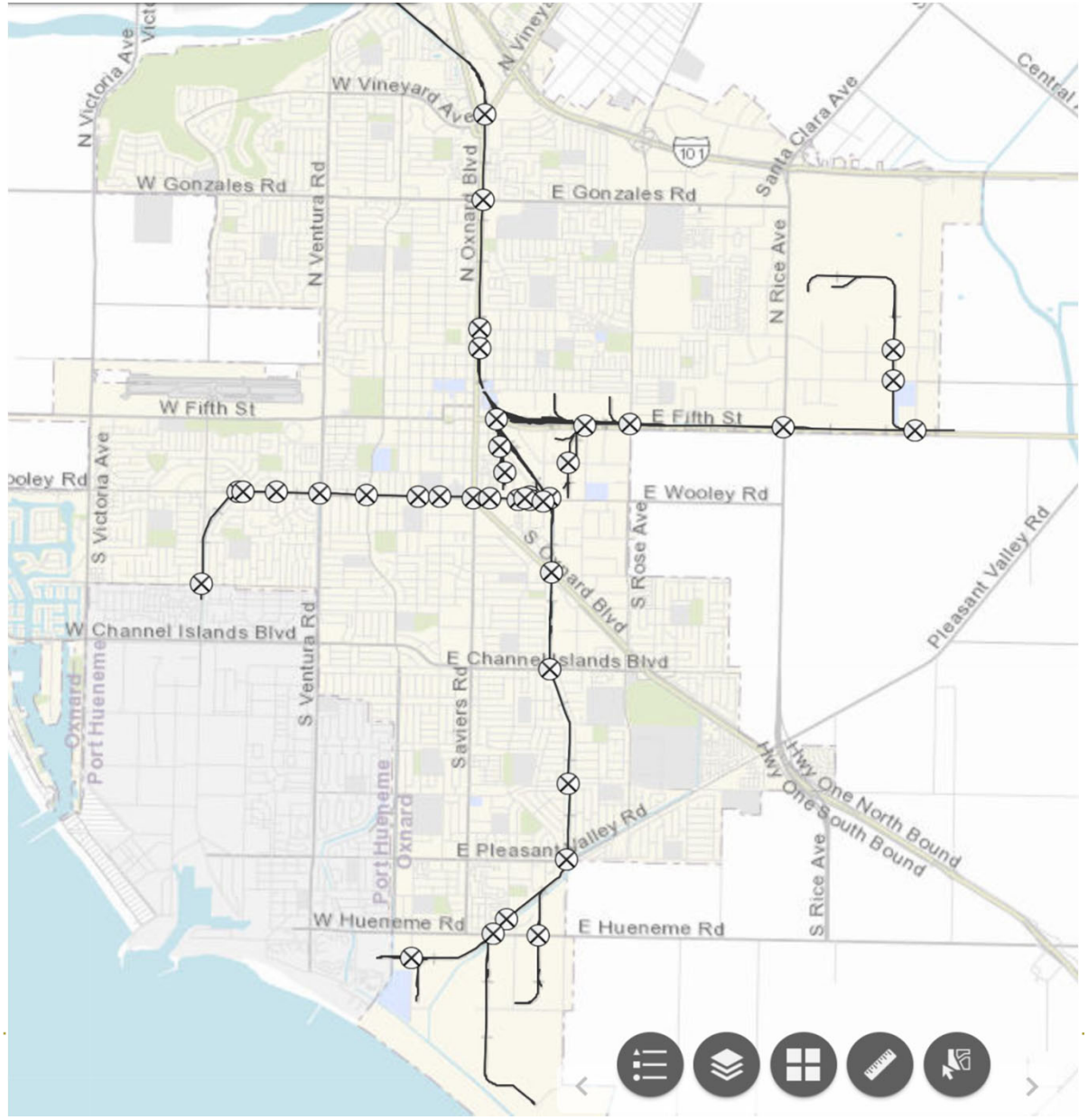
Crossing	Street	Baseline QZRI	RIWH	Eff. of New ASM	Final QZRI		Option	Improvement Summary	Signal Costs	Roadway Costs
190266F	THIRD ST	5,954	3,569	0.770	1,369		1	4-Quad Gates	$ 350,000	$ 14,256
190265Y	SECOND ST	3,945	2,365	0.000	3,945		0	Signals Only	$ 250,000	$ -
190264S	FIRST ST	3,312	1,985	0.000	3,312		0	Signals Only	$ 250,000	$ -
190263K	EAST BOULEVARD	15,797	9,471	0.800	3,159		1	ASM Medians	$ 250,000	$ 101,900
190261W	MAPLE ST	7,084	4,247	0.333	4,723		3	ASM Medians	$ 250,000	$ 35,164
			4,327		**3,302**				**$ 1,350,000**	**$ 151,321**
				NSRT	**14,723**					
				RIWH	**4,327**					
				QZRI	**3,302**	0.76	(QZRI / RIWH)	**TOTAL**		**$ 1,501,321**

SUPPLEMENTAL SAFETY MEASURES

Supplementary Safety Measure	Description	Rough Cost Estimate Range	Effectiveness Rates (higher is better)
Gates and Signal Upgrades			
Four-Quadrant Gates (New Installation or upgraded from two-quadrant gates) No Vehicle Presence Detection	Install gates at a crossing sufficient to fully block highway traffic from entering the crossing when the gates are lowered, including at least one gate for each direction of traffic on each approach.	Depends on Street Width $500K-$1M	.82
Four-Quadrant Gates with Vehicle Presence Detection	Same as above but also includes vehicle presence detection to allow vehicles to exit crossing before the post crossing gates close.	Same As Above with additional cost of vehicle detection ($100K per crossing)	.77
Four-Quadrant Gates, with Medians of at Least 60 feet, with or without Presence Detection	Same as two above excepts additional median restricts vehicles from crossover violations	Same as above with additional cost of median $100K-$300K	.92
Other SSM's			
Non-Traversable Curb Medians with or without Channelization Devices	Install medians or channelization devices on both highway approaches to a public highway-rail grade crossing denying to the highway user the option of circumventing the approach lane gates by switching into the opposing (oncoming) traffic lane and driving around the lowered gates to cross the tracks.	$50K-$300K May require gate relocations	.80
Mountable medians with Reflective Traffic Channelization Devices	Same as above excepts curbing is used and less restrictive devices are installed.	$50K-$100K	.75
Closures, Crossing Removals, Circulation Changes			
Temporary - Closure of a Public Highway-Rail Grade Crossing	Close the crossing to highway traffic during designated quiet periods.	Varies. May require offsite Improvements due to rerouted traffic	1.0
Permanent - Closure of a Public Highway-Rail Grade Crossing	Close the crossing to highway traffic permanently.	Varies. Requires offsite Improvements due to rerouted traffic	1.0
Grade Separation of a Public Highway-Rail Grade Crossing	Removes all traffic from crossing	Depends on Location Example: Rice/5th = $110M+	1.0
One-Way Streets with Gates	Convert streets to one-way and installs gates across full approach	Varies. Requires offsite Improvements due to rerouted traffic	.82

Note: Costs will vary significantly based on factors such as approach widths, intersection and track spacing, communication needs, age of equipment, etc. Additional costs may need to include ADA upgrades, additional detection or signal system work, environmental mitigation, other.

PUBLIC RAILROAD CROSSINGS - OXNARD



Source: City GIS

RAILROAD QUIET ZONES

Public Works and Transportation Committee
March 23, 2021

Timothy Bochum, T.E.
City Traffic Engineer

CITY OF OXNARD CALIFORNIA

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council receive and file a report on the Federal Railroad Administration's Railroad Quiet Zone process and potential application within the City of Oxnard.

TONIGHT

- Quiet Zones – what are they
- History of Train Horns and Quiet Zones
- Quiet Zone Criteria
- Establishment Process
- Crossing Countermeasures & Improvements
- City Crossing Examples
- Example of another City QZ Assessment Report
- Next Steps

WHAT IS A QUIET ZONE?

- A section of railroad where the <u>ROUTINE</u> sounding of horns is not allowed by train operators

- Where improvements

have been made to reduce risk at, or below, normal train horn operations

What its not:

- An area where train horns will **<u>never</u>** be sounded **<u>or</u>** **public crossing risks have been removed**

TRAIN HORN RULE - HISTORY

- Trains have been sounding horns to warn of approaching trains for decades
- Beginning in the 1970's many agencies began restricting train horns via ordinances and other measures
- 1994: Congress mandates Federal regulation of horns at grade crossings with exceptions to allow "Quiet Zones"
- 1994-2003: FRA solicits input from stakeholders
- 2005: Train Horn Rule goes into Effect under 44 CFR 222
  - Requires locomotive engineers to sound horns a 15-20 seconds in advance of all grade crossings
  - Includes discussion of Quiet Zone creation for public agencies

REQUIREMENTS

- Only local governments or public agencies may establish a quiet zone
- Must be at least ½ mile in length (this complicates some of our locations) and have at least one public highway-rail grade crossing.
- **Every public grade crossing in a quiet zone must meet pre-qualifying criteria:**
  - Gates, flashing lights, bells
  - Power-out indicators
  - Constant warning time detectors

Most Important:

To qualify – a public agency ***must*** ***certify*** to the Federal Railroad Administration that:

1) improvements at each crossing location within the Quiet Zone is **at least equal to the same "risk"** level as current Train Horn operations, **or**

- be **below** the National Safety Risk Level.

- **National Significant Risk Threshold (NSRT)**
  - National average of risk for all crossings in the US
  - Adjusted annually (may mean annual crossing review)

- **Risk Index with Horns (RIWH)**
  - Existing conditions with horns

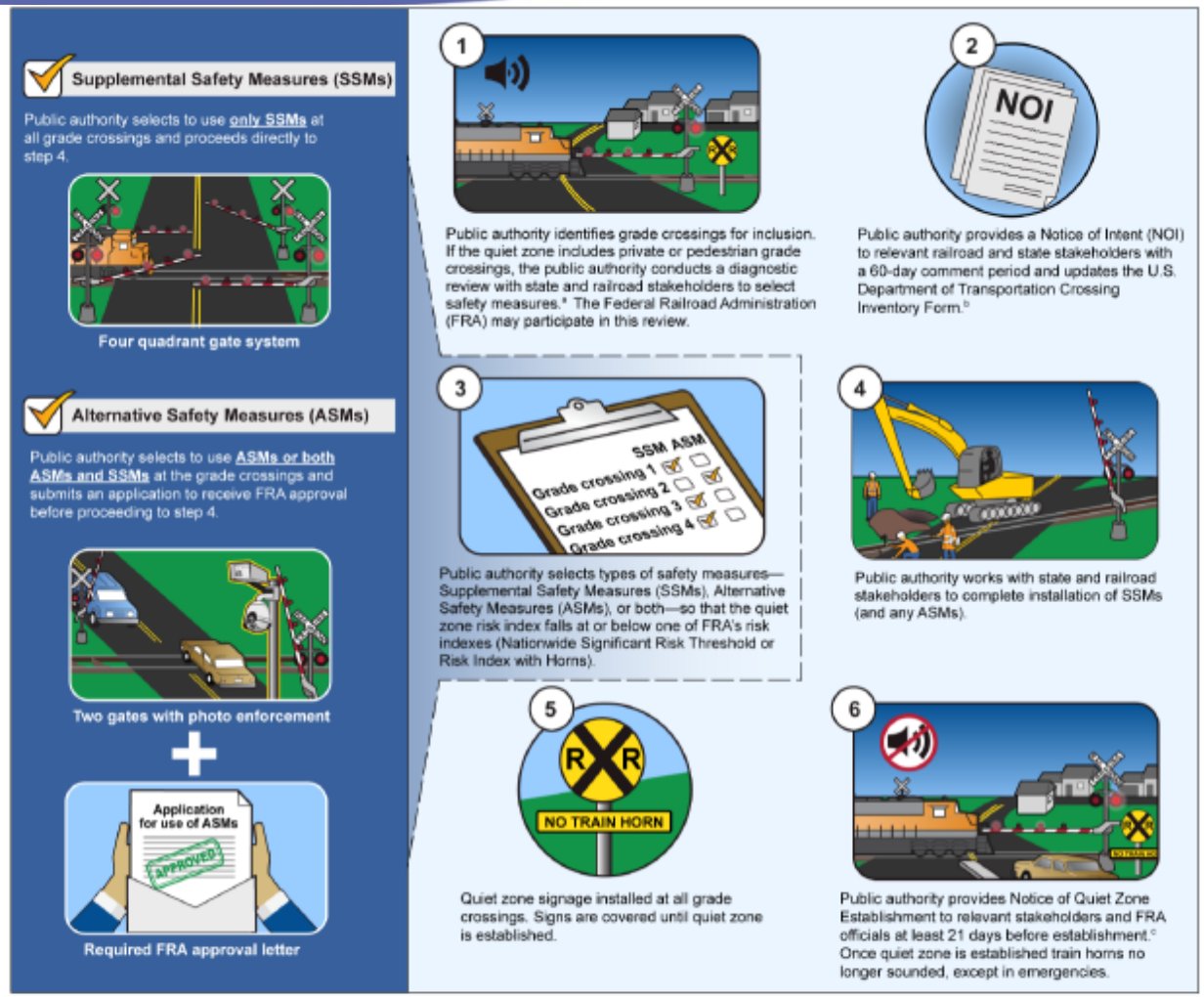
- **Quiet Zone Risk Index (QZRI)**
  - Risk level after corridor is adjusted for the lack of a horn and increased safety improvements

QZRI < NSRT (annually needs review)

or

QZRI ≤ RIWH

FRA – QUIET ZONE PROCESS



Source: GAO analysis of FRA quiet zone process. | GAO-18-97

[a]Each pedestrian crossing or private crossing to an active commercial or industrial site must be reviewed by a diagnostic team and equipped or treated in accordance with its recommendations. The public authority must invite the state agency responsible for grade crossings' safety and all affected railroads to participate in the diagnostic review. FRA is not required to participate in diagnostic reviews.

[b]The Notice of Intent provides railroads and state agencies with an opportunity to provide comments and recommendations on the quiet zone. A complete and accurate U.S.

EXAMPLE OF SUPPLEMENTAL SAFETY MEASURED - SSM'S

Source: SRF Consulting, Inc.

SSM'S COST ESTIMATE AND EFFECTIVENESS RATES

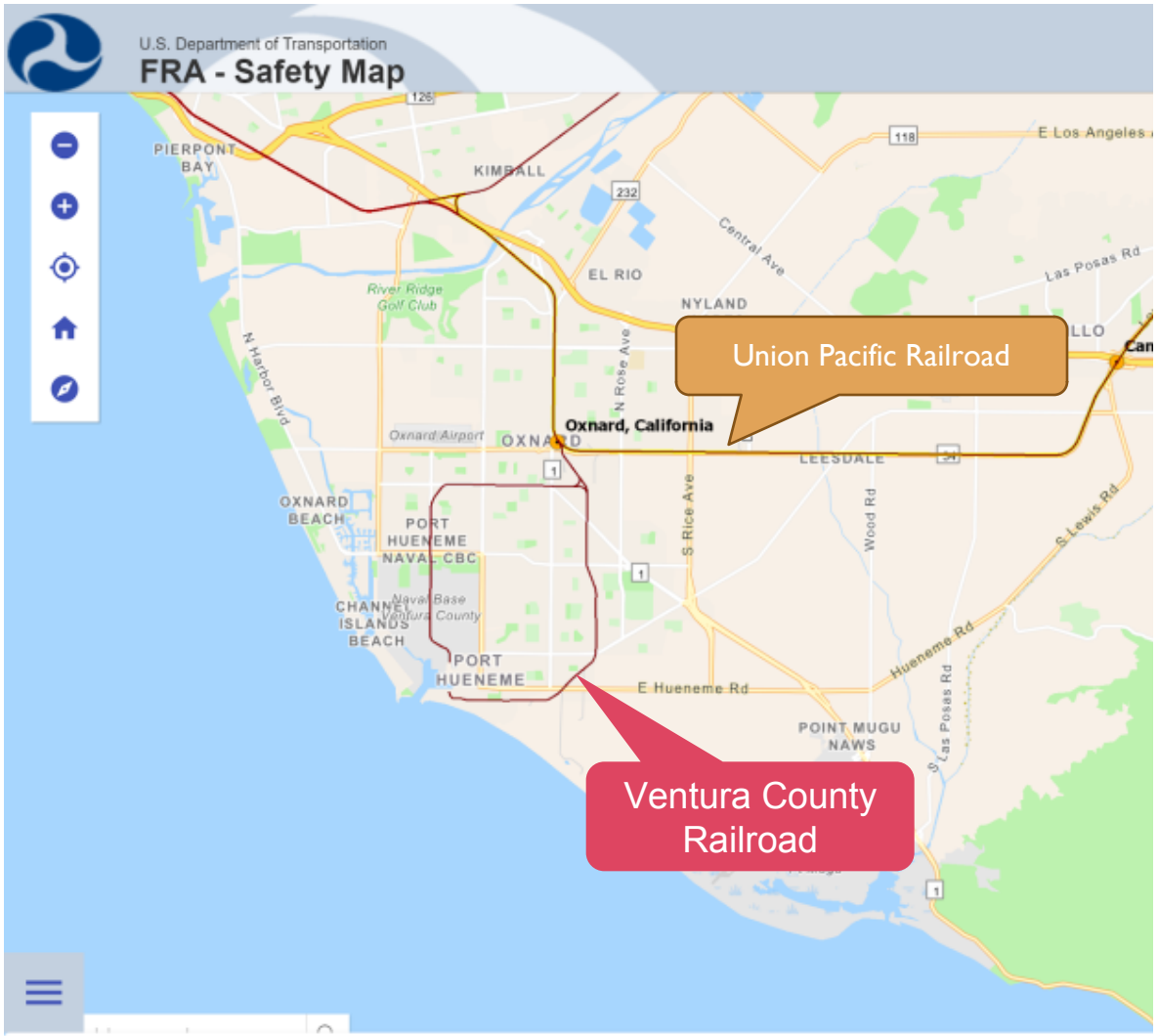
Supplementary Safety Measure	Description	Rough Cost Estimate Range	Effectiveness Rates (higher is better)
Gates and Signal Upgrades			
Four-Quadrant Gates (New Installation or upgraded from two-quadrant gates) No Vehicle Presence Detection	Install gates at a crossing sufficient to fully block highway traffic from entering the crossing when the gates are lowered, including at least one gate for each direction of traffic on each approach.	Depends on Street Width $500K-$1M	.82
Four-Quadrant Gates with Vehicle Presence Detection	Same as above but also includes vehicle presence detection to allow vehicles to exit crossing before the post crossing gates close.	Same As Above with additional cost of vehicle detection ($100K per crossing)	.77
Four-Quadrant Gates, with Medians of at Least 60 feet, with or without Presence Detection	Same as two above excepts additional median restricts vehicles from crossover violations	Same as above with additional cost of median $100K-$300K	.92
Other SSM's			
Non-Traversable Curb Medians with or without Channelization Devices	Install medians or channelization devices on both highway approaches to a public highway-rail grade crossing denying to the highway user the option of circumventing the approach lane gates by switching into the opposing (oncoming) traffic lane and driving around the lowered gates to cross the tracks.	$50K-$300K May require gate relocations	.80
Mountable medians with Reflective Traffic Channelization Devices	Same as above excepts curbing is used and less restrictive devices are installed.	$50K-$100K	.75
Closures, Crossing Removals, Circulation Changes			
Temporary - Closure of a Public Highway-Rail Grade Crossing	Close the crossing to highway traffic during designated quiet periods.	Varies. May require offsite Improvements due to rerouted traffic	1.0
Permanent - Closure of a Public Highway-Rail Grade Crossing	Close the crossing to highway traffic permanently.	Varies. Requires offsite Improvements due to rerouted traffic	1.0
Grade Separation of a Public Highway-Rail Grade Crossing	Removes all traffic from crossing	Depends on Location Example: Rice/5th = $110M+	1.0
One-Way Streets with Gates	Convert streets to one-way and installs gates across full approach	Varies. Requires offsite Improvements due to rerouted traffic	.82

Note: Costs will vary significantly based on factors such as approach widths, intersection and track spacing, communication needs, age of equipment, etc. Additional costs may need to include ADA upgrades, additional detection or signal system work, environmental mitigation, other.

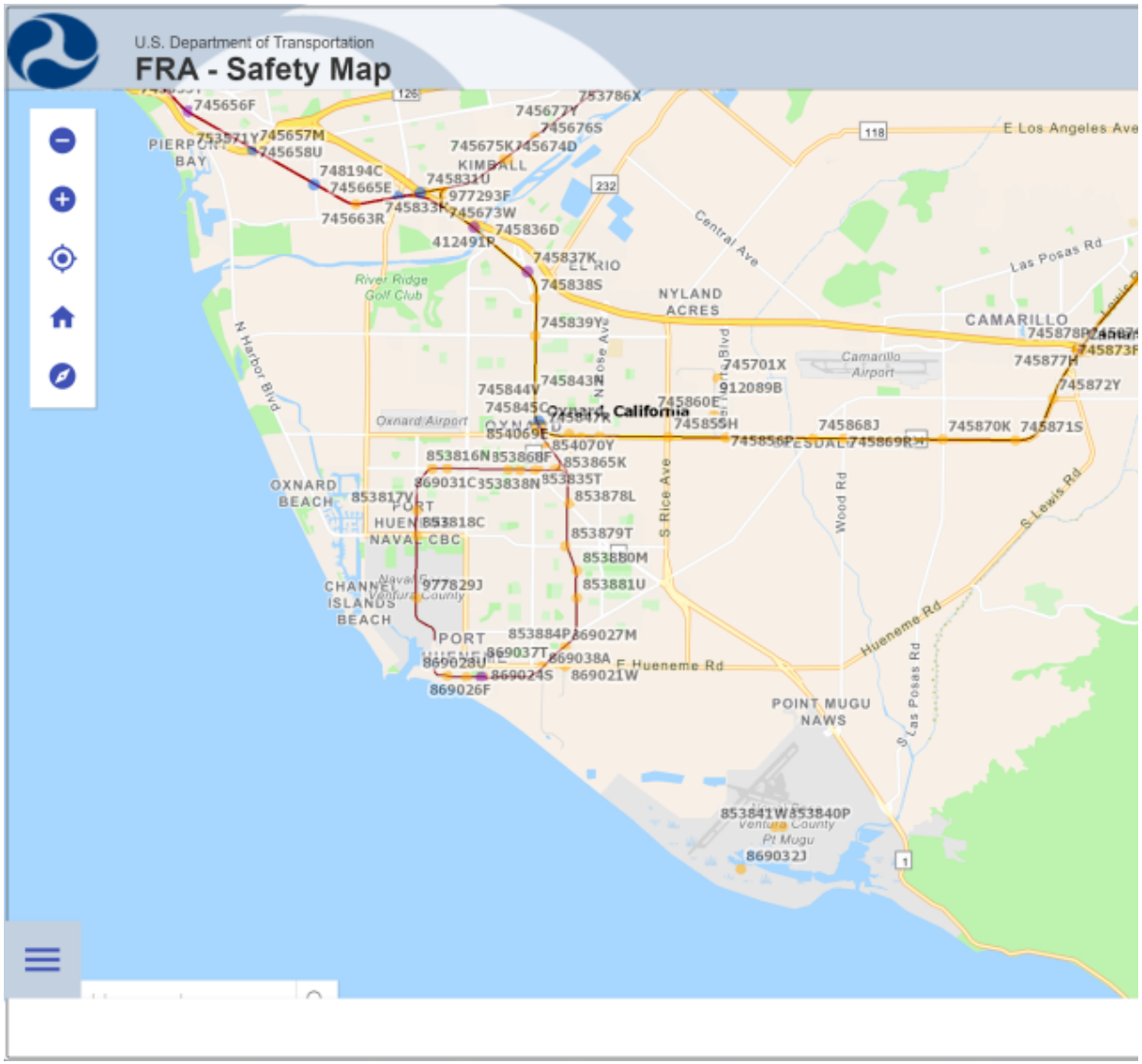
OXNARD AREA - RAILROAD OPERATIONS

- There are two (2) primary railroad operations within the City.
- The **Union Pacific Railroad** is the Class I freight carrier on the coast mainline through Ventura County and all the way along California's Central Coast.
- The **Ventura County Railway**, a short line railroad operated by Genesee & Wyoming (G&W) Railroad, connects the Port of Hueneme, Naval Base Ventura County and the industrial areas of south Oxnard to Union Pacific Railroad
- The VCRR currently extends for just over 12 miles on four branches
- Within the greater Oxnard service area the FRA lists over fifty crossings in their national database.
- Some of these crossings are private and some are under other jurisdictional control (such as City of Port Hueneme)

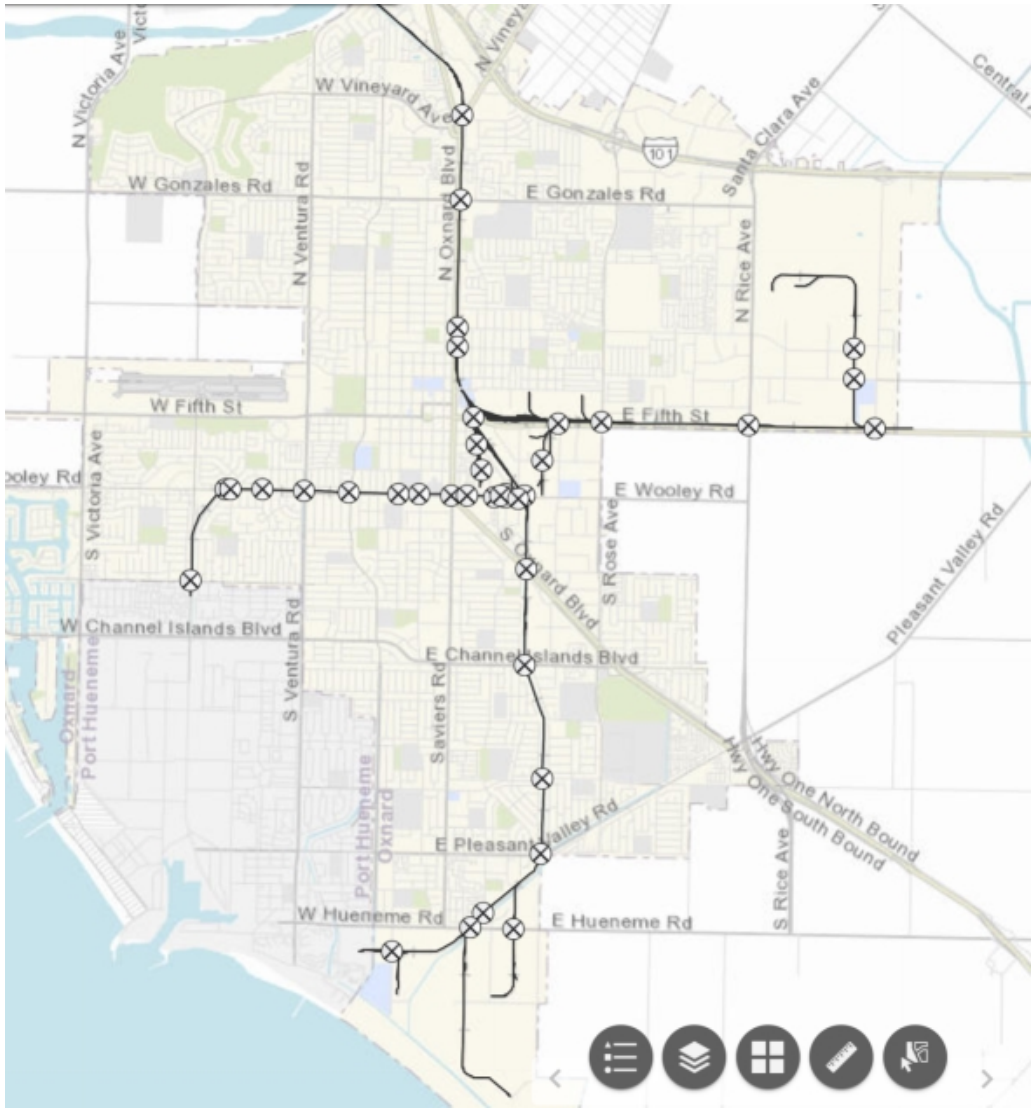
OXNARD AREA – RAILROAD OPERATIONS



OXNARD AREA – FRA CROSSINGS



RAILROAD CROSSINGS - CITY GIS



OXNARD RAILROAD CROSSING EXAMPLES

CROSSING EXAMPLE – WOOLEY AND E STREET

- Passive crossing – no gates or signals
- Pedestrian crossings (control and ADA)
- Limited ROW
- Difficulty in placing devices

NON-MOTORIZED CROSSINGS

Gary Street Ped XING

- Isolated Location
- Flashers, Bells, Signs
- No active Gating

OTHER CROSSINGS

UPRR/Colonia Crossing

- Vehicle Crossover
- Limited ROW
- Pedestrian Access/ADA
- Trespass

EXAMPLE OF A QUIET ZONE ASSESSMENT REPORT

Rapid City, SD

QUIET ZONE ASSESSMENT REPORT - EXAMPLE RAPID CITY

Rapid City Quiet Zone Assessment

FINAL

City of Rapid City, South Dakota

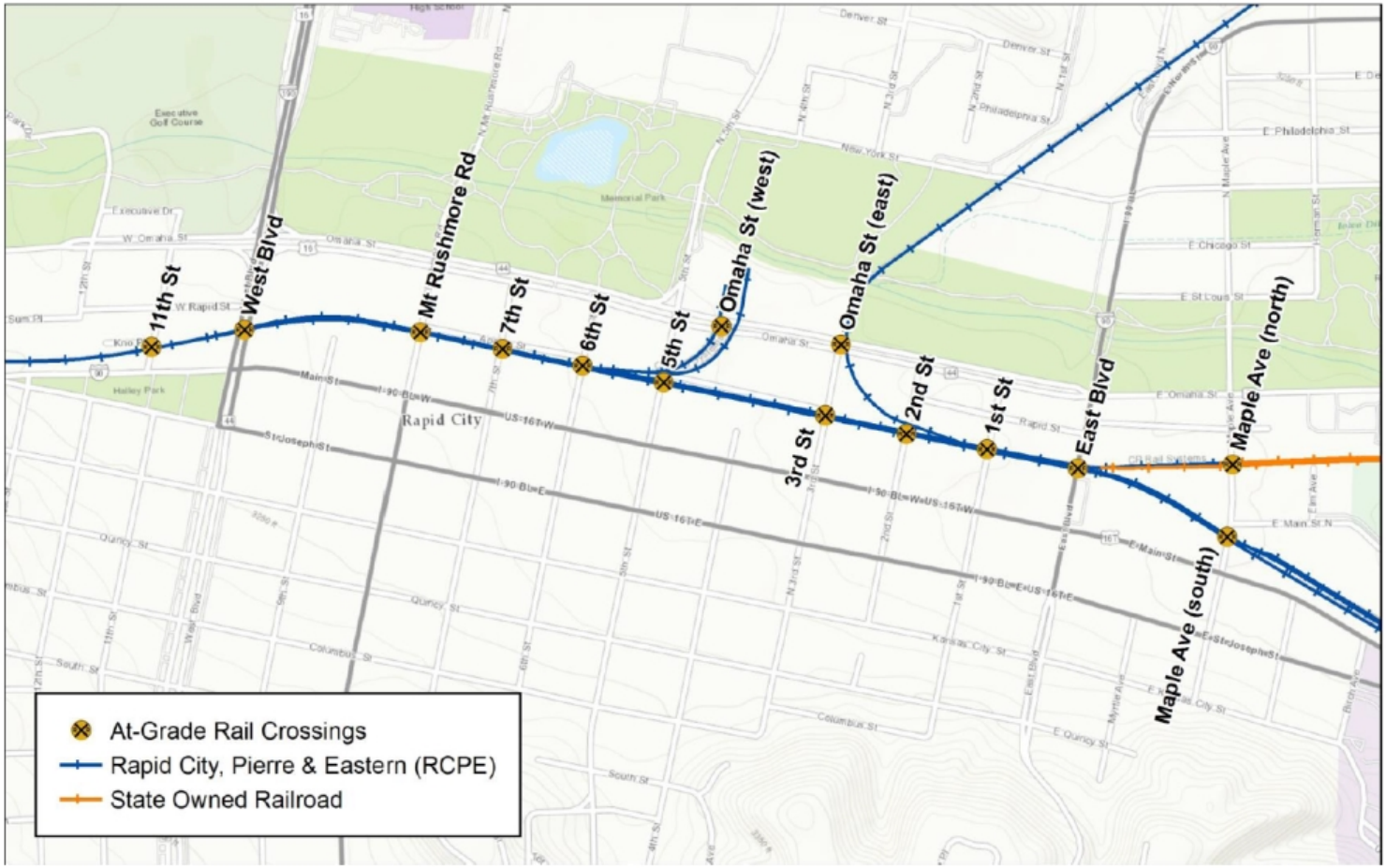
SRF Consulting Group, Inc. | Engineers Planners Designers

August 2018

SRF No. 11039

QUIET ZONE CORRIDOR – EXAMPLE RAPID CITY

Figure 1. Crossing Locations



CROSSING INVENTORY INDEX - EXAMPLE RAPID CITY

Crossing Name	Crossing ID	Milepost	Average Daily Traffic (ADT)	ADT Year of Collection	Gates	Flashing Lights	Constant Warning Time (CWT)
RCPE Mainline Crossings							
11th Street	190273R	100.08	1,706	2017	No	Yes	Yes
West Boulevard	190272J	99.97	13,509	2017	No	Yes	No
Mt Rushmore Road	190271C	99.77	11,498	2017	No	Yes	No
7th Street	190270V	99.68	2,200	2017	No	Yes	No
6th Street	190269B	99.59	3,200	2017	No	Yes	No
5th Street	190268U	99.45	18,365	2017	No	Yes	No
3rd Street	190266F	99.30	2,153	2017	No	Yes	No
2nd Street	190265Y	99.20	790	2017	No	Yes	No
1st Street	190264S	99.11	516	2017	No	Yes	No
East Boulevard	190263K	99.01	11,659	2017	No	Yes	No
Maple Avenue (south)	190261W	98.81	2,700	2017	No	Yes	No
Additional Crossings							
Maple Avenue (north)	190262D	98.81	2,700	2017	No	No	No
Omaha Avenue (east)	190267M	99.45	26,246	2017	No	Yes	No
Omaha Avenue (west)	190148D	649.25	26,246	2017	No	Yes	No

QZ ALTERNATIVES ASSESSMENT - EXAMPLE RAPID CITY

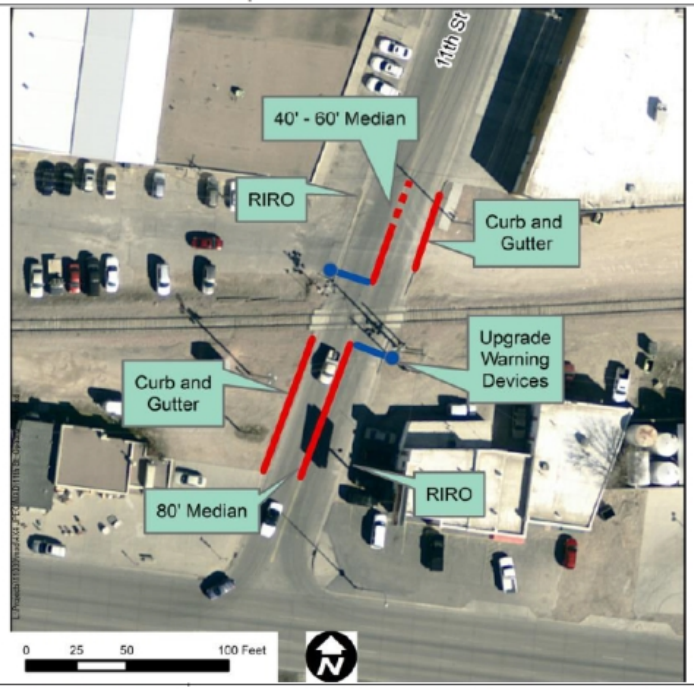
11th Street (190273R)

Option 1: Four-Quadrant Gates

Risk Reduction:	4,982 → 1,146 (77%)
Signal Costs:	$350,000
Roadway Costs:	$14,256
Total Cost:	**$364,256**
	(+$5,000 Ann. Maint.)

Notes: This option has the smallest impact on access to adjacent properties but has high construction costs and ongoing annual maintenance fees.

Option 2: ASM Medians



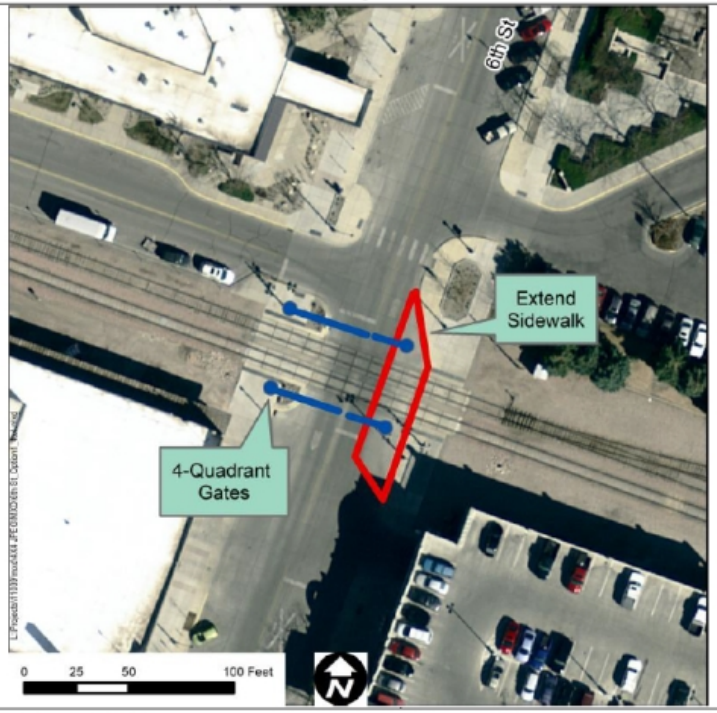
Risk Reduction:	4,982 → 1,661 (67%) (40' north median)
Signal Costs:	$250,000
Roadway Costs:	$64,056
Total Cost:	**$314,056**

Notes: This option would limit some accesses to right-in/right-out movements. The length of the north median may be extended to 60' if it is acceptable to further limit the access to the northwest property.

QZ ALTERNATIVES ASSESSMENT - EXAMPLE RAPID CITY

6th Street (190269B)

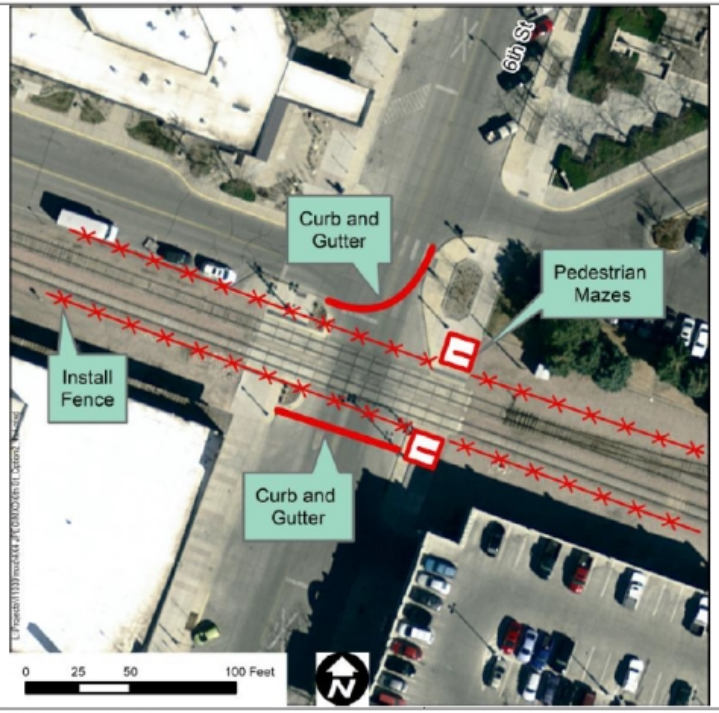
Option 1: Four-Quadrant Gates



Risk Reduction:	6,448 → 1,483 (77%)
Signal Costs:	$350,000
Roadway Costs:	$38,886
Total Cost:	**$388,886**
	(+$5,000 Ann. Maint.)

Notes: Trail crossing gates are limited to a maximum length of 32'. To accommodate this maximum length, the east sidewalk would need to be extended into the parking lane to allow for the placement of the northbound gates.

Option 2: Closure/Pedestrian Conversion



Risk Reduction:	6,448 → 0 (100%)
Signal Costs:	$0
Roadway Costs:	$82,606
Total Cost:	**$82,606**

Notes: This option closes the crossing to vehicles but remains open for pedestrians. The proposed pedestrian mazes force users to look down the tracks in each direction before proceeding. The additional fencing prohibits pedestrians from circumventing the mazes.

QUIET ZONE CORRIDOR COST/BENEFIT - EXAMPLE RAPID CITY

Table 3. Cost-Effectiveness of Proposed Improvements

Crossing Name	Improvement Option		Risk Reduction	QZRI	QZRI Reduction	Improvement Cost	Dollars / QZRI Reduction
Maple Avenue (south)	2	Closure	100%	7,084	7,084	$65,542	9.25
6th Street	2	Closure/Ped. Conversion	100%	6,448	6,448	$82,606	12.81
2nd Street	2	Closure	100%	3,945	3,945	$59,541	15.09
1st Street	1	Closure	100%	3,312	3,312	$55,845	16.86
Mt Rushmore Road	2	3-Quad Gates	79%	20,484	16,080	$365,305	22.72
Mt Rushmore Road	1	4-Quad Gates	77%	20,484	15,773	$380,715	24.14
West Boulevard	2	ASM Medians (Extend Existing)	80%	18,233	14,587	$357,820	24.53
East Boulevard	1	ASM Medians	80%	15,797	12,638	$351,900	27.85
Mt Rushmore Road	3	ASM Medians	40%	20,484	8,194	$315,305	38.48
West Boulevard	1	ASM Medians (Existing)	23%	18,233	4,254	$325,978	76.62
6th Street	1	4-Quad Gates	77%	6,448	4,965	$388,886	78.33
11th Street	1	4-Quad Gates	77%	5,954	4,584	$364,256	79.46
5th Street	2	ASM Medians	50%	19,263	9,631	$861,804	89.48
11th Street	2	ASM Medians	67%	4,982	3,321	$314,056	94.56
11th Street	1	4-Quad Gates	77%	4,982	3,836	$364,256	94.96
7th Street	1	4-Quad Gates	77%	6,007	4,625	$448,208	96.91
Maple Avenue (south)	3	ASM Medians	33%	7,084	2,361	$285,164	120.77
6th Street	3	ASM Medians	37%	6,448	2,364	$293,256	124.04
1st Street	2	ASM Medians	40%	3,312	1,325	$297,365	224.48

QUIET ZONE CORRIDOR RECOMMENDATIONS - EXAMPLE RAPID CITY

Table 4. Improvement Scenario Summary

Crossing Name	Baseline	Scenario 1: High Safety	Scenario 2: Cost-Effective (Without Closures)	Scenario 3: Cost-Effective (With Closures)	Scenario 4: Core Downtown Crossings Only
11th Street	Signals Only	4-Quad Gates	Signals Only	Signals Only	Excluded
West Boulevard	Signals Only	ASM Medians (Ext. Existing)	ASM Medians (Ext. Existing)	ASM Medians (Ext. Existing)	
Mt Rushmore Road	Signals Only	3-Quad Gates	3-Quad Gates	3-Quad Gates	3-Quad Gates
7th Street	Signals Only	4-Quad Gates	Signals Only	Signals Only	Signals Only
6th Street	Signals Only	4-Quad Gates	4-Quad Gates	Closure / Ped-Only	Signals Only
5th Street	Signals Only	ASM Medians	Signals Only	Signals Only	ASM Medians
3rd Street	Signals Only	4-Quad Gates	Signals Only	Signals Only	Excluded
2nd Street	Signals Only	Wayside Horns	Signals Only	Signals Only	
1st Street	Signals Only	ASM Medians	Signals Only	Signals Only	
East Boulevard	Signals Only	ASM Medians	ASM Medians	ASM Medians	
Maple Avenue (south)	Signals Only	ASM Medians	Signals Only	Signals Only	
Estimated Cost	$3,300,000	$4,403,578	$3,763,910	$3,457,630	$1,727,109
NSRT	14,723	14,723	14,723	14,723	14,723
RIWH	6,077	6,449	6,077	6,077	7,824
QZRI	10,137	3,293	5,749	5,614	6,623

Note: Quiet Zone Risk Index (QZRI) must be below either Nationwide Significant Risk Threshold (NSRT) or Risk Index With Horns (RIWH) to qualify for quiet zone implementation.

FINANCIAL IMPACT

- No direct financial impact to receive and file this report
- Currently, no available budget allocation for review and investigation of a quiet zone within the City nor does the project currently exist in a work program for the City
- It is recommended that consultant assistance be utilized to expedite and complete the needed background work to formally consider the issues associated associated with quiet zone implementation

NEXT STEPS

1. Identify locations within the Oxnard for potential quiet zone implementation (Staff)
2. Appropriate funding and hire a consultant to evaluate crossing locations, prepare alternative assessments, and develop estimates of costs
3. Develop quiet zone final report.
4. Return to Council with recommendations for Quiet Zone establishments and funding needs.
5. Based upon final Council direction file Notice of Intent (NOI) to form quiet zone designation.

CITY OF
OXNARD
CALIFORNIA

QUESTIONS

PUBLIC WORKS AND TRANSPORTATION COMMITTEE
AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.3

DATE: March 23, 2021

TO: Public Works and Transportation Committee

FROM: Vyto Adomaitis, Community Development Director, (805) 385-7868, vyto.adomaitis@oxnard.org

SUBJECT: Master License Agreement For Wireless Installation on Municipal Facilities. (0/10/10)

RECOMMENDATION

That the Public Works and Transportation Committee:

1. Receive a summary report on a draft Master License Agreement (MLA) for Wireless Installation on Municipal Facilities; and

2. Provide input on the draft MLA for Wireless Installation on Municipal Facilities.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/YgHBwna3a1I

BACKGROUND

EXECUTIVE SUMMARY

In response to changes in Federal and State law, Report and Orders issued by the Federal Communications Commission (FCC), and court orders, it is necessary to adopt specific regulations relating to the installation of Wireless Facilities within the public right-of-way. The purpose of this report is to facilitate a consistent and streamlined process for licensing City municipal facilities to wireless telecommunications providers for the installation and operation of compact, localized "small cell" facilities, in compliance with regulations which restrict local agencies from denying access to City owned municipal facilities such as street lights and traffic signals.

BACKGROUND

The telecommunications industry is ever evolving. Historically, cellular telecommunications have utilized large antenna structures (cell sites). These cell sites are often located on existing telecommunications infrastructure, major powerlines, or on monopoles designed to blend into the surrounding environment, such as trees and flag poles. These cell sites have operated on older cellular technology (e.g., 2G, 3G) as well as the current 4G/LTE system that many cell phones use today. With the adoption of smart phones, mobile web browsing and streaming video has led to exponential growth in demand for wireless data transfer and increased download

speeds to meet customer expectations. This need will be even greater with the evolution and implementation of the Internet of Things (IoT) and the next generation (5G) mobile connectivity. To address this current and future need, wireless telecommunications providers are deploying small cell facilities to supplement the shortfalls of traditional macro cell stations. This technology will require the upgrade to existing facilities and construction of new facilities to include numerous small cell facilities located in the public right-of-way on existing infrastructure such as street lights and traffic signals.

Federal law provides extensive regulation on the local implementation of cellular telecommunication facilities. President Obama signed an Executive Order in 2012 titled "Accelerating Broadband Infrastructure Deployment." This order was followed shortly by the passage of the "Middle Class Tax Relief Act" which included the Spectrum Act that was geared towards expediting commercial mobile broadband. These were some of the first pieces of legislation that began a roll back of local government's authority regarding the regulation of wireless deployment. While the City retains some discretion over aesthetic placement of cellular telecommunications facilities, under Federal law, the City may not "regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions." (47 U.S.C. § 332(c)(7)(B).)

The FCC has since released a number of Report and Orders that have created expediated timelines, referred to as "shot-clocks", that cities must abide by in the processing of wireless facilities requests. The State of California has also passed legislation that goes one step further and allows applications to be "deemed granted" if a jurisdiction fails to make a determination in the time limits set by the FCC shot-clocks. Following on the heels of these legislative actions the City received 20 applications for small cells in the right-of-way in 2017; 55 in 2018; 34 in 2019; and 26 in 2020.

Reliable wireless infrastructure networks are necessary to serve the communication needs of City residents and businesses, and for public services, especially emergency communications and advanced transportation system management. From an economic development perspective, having robust communication services available is important to retaining and attracting businesses.

On October 15, 2018, the Federal Communications Commission (FCC) issued an Order regarding how local jurisdictions may respond when presented with proposals to install small cell facilities on City municipal facilities within the right-of-way. The Order is lengthy, but the portions relevant to the City may be summarized as follows:

1. Reiterates existing law which states that Cities may not take any action which would "prohibit or have the effect of prohibiting" the development of wireless networks. The impacts of any regulations on the fiscal health or profitability of a wireless network company must be taken into account when determining whether an action "effectively prohibits" the development of the wireless network.
2. The City must treat all wireless service providers equally, and may not charge different fees or impose different requirements upon different providers.
3. Aesthetic and other regulatory requirements (including undergrounding requirements) must be "reasonable," applicable to all projects within the right-of-way, and published in advance. Requiring all facilities to be located underground amounts to an "effective prohibition" of wireless service.
4. Cities must allow wireless communications companies to use their infrastructure and must allow wireless telecommunications companies to construct new infrastructure in the right-of-way if doing so is necessary to provide wireless service. As a result of this, although a City may enter into a MLA with a wireless telecommunications company, it may not condition the use of City-owned property on

entering into such an MLA. The City may, however, require that applicants obtain non-discretionary permits such as Encroachment Permits if the standards are published in advance.

5. Cities must process all applications received within 60 days of application for equipment mounted on existing structures, or 90 days for the construction of new structures. This is known as the "shot clock," and includes all required approvals (i.e. not just an initial approval).
6. The Order took effect on January 14, 2019, with a deadline for local jurisdictions to adopt aesthetic standards is April 14, 2019. Despite this Order, the City of Oxnard is still currently engaged in negotiations for a MLA with several telecommunications companies for mutually acceptable terms. However, these regulations are still necessary to properly protect public health, safety, and welfare in the event that applications are received and the applicant refuses to enter into a MLA under terms acceptable to the City, as well as to establish a baseline level of standards to demonstrate that the City is not discriminating between market players.

ANALYSIS AND DISCUSSION

Currently, the City does not have an agreement to manage the requests to use City municipal facilities for the deployment of small cell facilities in the public right-of-way, which leaves the City without a consistent and streamlined approval process for the scale of small cell facilities expansion that is anticipated and required under Federal law. Over the last year, the City has received considerable and persistent interest from telecommunications providers to install and operate small cell facilities on City municipal facilities. In order to address market demand and comply with Federal and State regulations, in a manner that manages impacts on City staff resources and provides for cost recovery, an administrative process has been developed that consists of a:

- MLA – a standardized agreement form proposed to be approved by the City Council and executed by the City Manager with individual wireless communication providers. The MLA includes an annual charge for the use of City municipal facilities supporting small cell facilities.
- Site Permit – shall mean a permit issued by the Licensor with regard to a specific Wireless Installation, which shall be subject to the terms and conditions of the MLA. Licensee will maintain a list of all Site Permits pursuant to this MLA.

<u>The Proposed Master License Agreement (MLA)</u>

The proposed MLA is a comprehensive document that contains uniform terms and conditions applicable to all small cell facilities installed on City municipal facilities in the public right-of-way. Staff from the City Attorney's Office and the Community Development and Public Works Departments collaborated in drafting the initial MLA, and subsequently the City sought input from the wireless carriers (i.e. AT&T, Sprint, T-Mobile & Verizon). City staff evaluated each set of comments and incorporated select revisions that could be applied generally and fairly to all providers.

The proposed MLA establishes the procedures for issuance of a license to use City municipal facilities. Individual Site Permits issued pursuant to the MLA would identify the licensed municipal facility and contain detailed exhibits for the site plans, insurance documentation, surety, and other materials that are unique to the site.

By using the same form for all the companies, there is only one set of rules and the administrative burden on the City is reduced. Moreover, Federal law requires local agencies to treat all wireless providers equally, and using the same contract form accomplishes this requirement. With this arrangement, the providers benefit by

reducing costs associated with negotiating individual City municipal facilities licenses and allowing deployment of small cell facilities with a streamlined process.

Key components of the draft MLA are as follows:

- **Term**- Ten (10) years. During this period, Licensee can apply for individual Site Permits under the terms of the MLA.
- **Fees**- Two Hundred Seventy and No/100 Dollars ($270.00) per Wireless Installation located in the City's right-of-way for each year of the Site Permit term. The Fee is per Wireless Installation, and includes all Municipal Facilities, appurtenant equipment and facilities used in connection with each Wireless Installation. The Fee may be revised once per calendar year to an amount that is calculated pursuant to the terms and conditions of the FCC 2018 Order, calculated pursuant to a cost study which has been reviewed, adopted and approved by Licensor's City Council and is not subject to further appeals or subject to a complaint before a competent regulatory agency or court.
- **Construction**- Licensee shall comply with all applicable Laws related to the construction, installation, operation, maintenance, and repair of Licensee's Wireless Installations installed in the ROW and on Municipal Facilities. Licensee's ability to use the City's municipal facilities is contingent upon its obtaining and paying all applicable fees for all of the certificates, permits and other approvals that may be required by any Federal, State or Local authorities.
- **Operations and Maintenance**- Licensee's operation of its Wireless Installations will comply with all FCC regulations regarding RF emissions and exposure limitations. Licensee is allowed to install signage and other mitigation, such as a power cut-off switch on Municipal Facilities, to allow workers and third parties to avoid excess exposure to RF emissions. Licensee equipment installed pursuant to the MLA shall not damage or interfere in any way with City property and operations or the operations of prior-existing, third party installations. Licensee will reasonably cooperate with the City to carry out such activities as are necessary to correct the interference.

<u>Design Standards for Small Cell Facilities on Municipal Facilities (Design Standards)</u>

The proposed Design Standards establish design standards intended to minimize the aesthetic impacts of these small cell facilities without "effectively prohibiting" the provision of wireless service. Accordingly, varying degrees of flexibility may be provided, provided that the applicant can demonstrate that the regulations would "effectively prohibit" the provision of wireless service. Flexibility in the design standards may also be granted through the terms of a MLA, provided that the alternative would result in an equal or superior level of design than that provided through strict application of the regulations. Please refer to Attachment 2 to review the proposed Design Standards.

Key components of the Design Standards are the following:

1. Application for a Site Permit that includes the required information for staff to make a determination that the proposed wireless facility is safe and is consistent with all applicable regulations.
2. Require design standards that will minimize adverse visual impacts and require underground wiring to the extent possible and provide mechanisms to correct visual deficiencies such as graffiti.
3. Ensure the installation of small cell facilities meet conditions as may be required to control the construction, installation, maintenance, repair and removal of such facilities in a public right-of-way so as to protect and benefit the public health, safety, and welfare.

ENVIRONMENTAL REVIEW

The proposed MLA, inclusive of the Design Standards, are exempt from the California Environmental Quality Act (CEQA) pursuant to Section 15303 (New Construction or Conversion of Small Structures) as the MLA would facilitate installation of small new equipment and facilities to to City owned municipal facilities such as street lights and traffic signals . Additionally, the Telecommunications Act of 1996 establishes specific thresholds and guidelines for wireless radio frequency emission levels that are acceptable by the FCC. The Act expressly prohibits local governments from regulating personal wireless service facilities on the basis of the environmental effects of radio frequency emissions. The Federal government has assumed jurisdiction in this area and MLA participants will have licenses with the Wireless Telecommunications Bureau. The MLA, inclusive of the Design Standards have no potential to cause any effect on the environment; therefore, CEQA does not apply to this project pursuant to CEQA Guidelines Section 15061.

STRATEGIC PRIORITIES

This agenda item supports the Economic Development strategy. The purpose of the Economic Development strategy is to develop and enhance Oxnard's business climate, promote the City's fiscal health, and support economic growth in a manner consistent with the City's unique character. This item supports the following goals and objectives:

Goal 2. Enhance business development throughout the City.

Objective 2a. Develop a strong citywide economy which attracts investment, increases the tax base, creates employment opportunities, and generates public revenue.

This agenda item supports the Infrastructure and Natural Resources strategy. The purpose of the Infrastructure and Natural Resources strategy is to establish, preserve and improve our infrastructure and natural resources through effective planning, prioritization, and efficient use of available funding. This item supports the following goals and objectives:

Goal 1. Ensure Master plans for all City infrastructure are current, synchronized and consistent with the General Plan.

Objective 1b. Develop master plans for other City facilities and vehicles.

FINANCIAL IMPACT

Pursuant to federal regulations, the MLA is intended to be revenue neutral. The City is entitled to cost-recovery and will use the FCC's safe harbor rate of $270 per pole per year as a site license fee for each attachment to a City-owned structure in the public right-of-way. Approval of the MLA and issuance of subsequent Site Permits will augment revenue to the General Fund. The cost to issue the Site Permit will be recovered by an Administrative Wireless Permit fee and the yearly escalator.

Prepared by: Isidro Figueroa, Principal Planner

ATTACHMENTS

1. Draft Master License Agreement for Wireless Installation on Municipal Facilities
2. Draft Site Permit Process and Design Standards for Small Cell Facilities on Municipal Facilities
3. Master License Agreement For Wireless Installation on Municipal Facilities Presentation

MASTER LICENSE AGREEMENT FOR
WIRELESS INSTALLATIONS ON MUNICIPAL FACILITIES

This Master License Agreement For Wireless Installations on Municipal Facilities ("Agreement") is made and entered into as of the Effective Date by and between City of Oxnard ("Licensor") and _____ ("Licensee").

RECITALS

WHEREAS, Licensee seeks to attach Wireless Installations to certain Municipal Facilities upon the terms and conditions set forth below;

WHEREAS, Licensor is willing to accommodate Licensee's non-exclusive use of such Municipal Facilities in accordance with Laws and the terms and conditions of this Agreement; and

WHEREAS, any capitalized terms in this Agreement shall have the meaning ascribed to them in Exhibit 1 attached hereto and incorporated herein by reference.

NOW, THEREFORE, FOR VALUABLE CONSIDERATION, receipt of which is hereby conclusively acknowledged, the Parties agree as follows:

1. GRANT OF LICENSE

1.1 Grant of License. To the extent not already governed by Laws, Licensor hereby grants Licensee a nonexclusive and revocable license for Licensee to install, operate and maintain equipment for Wireless Installations on Licensor's Municipal Facilities in the ROW, as provided herein and as provided in the individual Site Permits signed by the Parties pursuant to this Agreement. The license granted herein is revocable only in accordance with the terms and conditions of the Agreement. No use of Licensor's Municipal Facilities under this Agreement shall create or vest in Licensee any ownership or property rights in such Municipal Facilities. Nothing in this Agreement grants Licensee the right to make any Wireless Installation, or to install other facilities, including Wireless Installations, which do not conform to this Agreement.

1.2. Permitted Use. Licensee may use Licensor's Municipal Facilities for the Permitted Use, subject to the terms and conditions of this Agreement and the application on file with the Licensor.

1.3. Code Compliant. Licensee shall comply with all applicable requirements of the Oxnard City Code, for any permit or other approval conditions, including any requirements regarding the placement, size, quantity, shape, color and camouflage of equipment.

1.4. Deactivation. In the event that the Licensor must access or perform work on a Municipal Facility on which Licensee has installed Wireless Installations and where Licensor's employees or agents by proximity to the Wireless Installations may exceed the limits for occupational/controlled exposure per FCC OET Bulletin 65, which may be amended from time to time, will contact Licensee at the contact telephone number referenced in §15.1 herein to request temporary deactivation, and Licensor shall deactivate within 48 hours upon notification.

1.5. 24 Hour Contact. Licensee shall be available to the staff employees of any Licensor department having jurisdiction over Licensee's activities 24 hours a day, seven days a week, regarding problems or complaints resulting from the attachment, installation, operation, maintenance, or removal of the Wireless Installations. Licensee's emergency contact information is provided to the Licensor in §15.1.

(a) **2. TERM**

2.1 Agreement Term. This Agreement shall commence as of the Effective Date and remain in effect for a period of ten (10) years, if not lawfully terminated sooner.

2.2 Site Permit Term.

(a) The initial term for each individual Site Permit shall commence on the Commencement Date and shall expire with the Agreement Term under which the Site Permit was granted.

Promptly following Licensee's receipt of Licensor's written request, the Parties shall confirm in an Acknowledgment the Commencement Date and expiration date of the Site Permit.

(b) Each Site Permit shall automatically be granted the same extension as this Agreement.

(b) **3. CHARGES, BILLING AND PAYMENT**

3.1 Annual Fee.

(a) Licensee shall pay Licensor a Fee of Two Hundred Seventy and No/100 Dollars ($270.00) per Wireless Installation located in Licensor's right-of-way for each year of the Site Permit term. The Fee is per Wireless Installation, and includes all Municipal Facilities, appurtenant equipment and facilities used in connection with each Wireless Installation. Except in the event of a voluntary termination of a Site Permit pursuant to Section 13.4(b) below, the Fee will be prorated for any partial year based on a 365-day calculation.

(b) The Fee may be revised once per calendar year to an amount that is calculated pursuant to the terms and conditions of the FCC 2018 Order, calculated pursuant to a cost study which has been reviewed, adopted and approved by Licensor's City Council and is not subject to further appeals or subject to a complaint before a competent regulatory agency or court. After the revised Fee is final as described in the preceding sentence, Licensor shall provide Notice to Licensee of the Fee in accordance with the notice requirements of this Agreement. The Fee payable under this Agreement will adjust to Licensor's Cost starting with Fee payments that are due at least 90 days after the date of such notice.

3.2 Timing of Payment. The Annual License Fee for the initial year of the Site Permit shall be due within ninety (90) days of the Commencement Date, and shall be prorated by the number of remaining days in the Calendar year, through December 31st. Thereafter, the Annual Fee shall be paid for each Site Permit January 1 of each year during the term of this Agreement. For any year that any Site Permit is in effect for less than a twelve month period commencing from January 1 up through December 31st, the amount of Annual Fee shall be prorated by the number of days that the Site Permit is in effect. Payment of the Annual License Fee shall be made by check payable to the City of Oxnard, mailed or delivered to the following address:

City of Oxnard Planning Division
214 S. C Street
Oxnard, CA 93030
Attention: Community Development Director

If mailing individual checks the Site Permit number must be identified on the payment. If mailing a single check for multiple Site Permits the check must be accompanied by a list of the Site Permits for which payment is being made.

3.3 Billing and Payment Generally. In the event the Licensor or its administrator provides an invoice to Licensee for the Annual License Fee, such invoice shall be deemed a courtesy to the Licensee and the Licensee shall be obligated to pay the Annual License Fee whether or not an invoice is provided. All bills and other requests for payment to Licensor under this Agreement (other than the payment of the Annual License Fee) shall be presented in writing to Licensee and accompanied with reasonable substantiation of the costs incurred by Licensor. Properly presented invoices shall be paid by Licensee within ninety (90) days of receipt of invoice accompanied by such substantiation. All charges payable under this Agreement shall be billed by Licensor within one (1) year from the end of the calendar year in which the charges were incurred. Any charges beyond such period shall not be billed by Licensor, and shall not be payable by Licensee.

a. 3.4 Delinquent Payment. If Licensee fails to pay any amounts due pursuant to this Agreement within thirty (30) days following the due date thereof, Licensee will pay, in addition to the unpaid fees, a

late penalty equal to five percent (5%) of the amount due, and accrued interest, for each month and/or fraction thereof during which the payment is due and unpaid.

3.5 Additional Remedies. The remedy provisions set forth in §3.4 above are not exclusive, and do not preclude the Licensor from pursuing any other or additional remedy.

(c) **4. ATTACHMENT**

(d) 4.1 Licensee will submit to the authorized representative of the Licensor a proposed design for any proposed Wireless Installations that Licensee proposes to use for Licensor's approval. Any approved Wireless Installations shall be included and attached to the application for a Site Permit. Unless Laws provide otherwise, Licensor shall notify Licensee of the specific deficiencies in any application for a Site Permit within ten (10) days of its submission, and Licensor will approve or reject each Site Permit application within sixty (60) days of its submission or resubmission for sites that have existing Municipal Facilities, or for sites that require replacement Municipal Facilities and ninety (90) days for sites that do not have an existing Pole. Any denial of a Site Permit shall be specific, shall include all relevant information supporting its denial.Upon approval of a Site Permit, Licensee shall provide an estimate and description of any required make-ready work and charges in connection with such Site Permit. Licensee may install the approved Wireless Installations in accordance with the Site Permit issued by the Licensor.

(e) 4.2 Subject to the conditions herein and as authorized by the Oxnard City Code, Licensee may enter upon the ROW and to locate, place, attach, install, operate, maintain, control, remove, reattach, reinstall, upgrade, modify, relocate, and replace Wireless Installations permitted and approved by the City in or on identified Municipal Facilities pursuant to individual Site Permits for the purposes of operating the Wireless Installations and providing telecommunications services.

(f) 4.3 Licensee shall comply with all requirements of the Oxnard City Code, for any permit or other approval conditions, including any requirements regarding the placement, size, quantity, shape, color and camouflage of Wireless Installations. Licensor will timely cooperate with Licensee to obtain such approvals or permits.

(g) **5. CONSTRUCTION**

(h) 5.1 Licensee shall comply with all applicable Laws related to the construction, installation, operation, maintenance, and repair of Licensee's Wireless Installations installed in the ROW and on Municipal Facilities. Except as otherwise provided herein, Licensee shall not attach, install, maintain, or operate any Wireless Installations in or on the ROW and/or on Municipal Facilities without the prior written approval of an authorized representative of the Licensor for each location.

(i) 5.2 Commencement of Installation and Operation. Licensee shall commence installation of its initial Wireless Installations approved by the Licensor no later than two (2) years after the issuance of an applicable Site Permit, provided, however, these dates may be extended by the Parties in the event of force majeure events. If Licensee fails to commence installation of any applicable Wireless Installations as provided above, after notice and opportunity to cure, the Licensor may terminate the Site Permit upon thirty (30) days' written notice. Notwithstanding the foregoing, Licensee's obligations under this §5.2 shall be conditioned upon Licensee's completion of its due diligence with regard to a particular Wireless Installation.

(j) 5.3 Obtaining Required Permits. It is understood and agreed that Licensee's ability to use the ROW and/or Municipal Facilities is contingent upon its obtaining and paying all applicable fees for all of the certificates, permits and other approvals (collectively the "Governmental Approvals") that may be required by any Federal, State or Local authorities, as well as a satisfactory fiber and electrical connection which will permit Licensee's use of the ROW and/or Municipal Facilities. Licensor shall promptly respond to Licensee's requests for permits and shall otherwise cooperate with Licensee in facilitating the deployment of the Wireless Installations in the ROW in a reasonable and timely manner pursuant to the Oxnard Municipal Code and applicable Laws. In the event that (i) any of such applications for such

Governmental Approvals should be finally rejected; (ii) any Governmental Approval issued to Licensee is canceled, expires, lapses, or is otherwise withdrawn or terminated by a governmental authority; (iii) Licensee determines that such Governmental Approvals may not be obtained in a timely manner; (iv) Licensee determines that it will be unable to obtain in a satisfactory manner, or maintain any fiber or power connection; or (v) Licensee determines that the ROW and/or Municipal Facilities is no longer technically compatible for its use, Licensee shall have the right to terminate a Site Permit.

(k) 5.4 Relocation and Displacement of Wireless Installations. Licensee understands and acknowledges that Licensor may require Licensee to relocate one or more of its Wireless Installations. Licensee shall at Licensor's direction and upon one hundred eighty (180) days prior written notice to Licensee, relocate such Wireless Installations at Licensee's sole cost and expense whenever Licensor reasonably determines that the relocation is needed for any of the following purposes: (a) if required for the construction, modification, completion, repair, relocation, or maintenance of a Licensor or other public agency project (b) because the Wireless Installations is interfering with or adversely affecting proper operation of Licensor-owned Municipal Facilities, traffic signals, communications, or other Municipal Facilities and Licensee fails to cure such interference during the applicable cure period; or (c) to protect or preserve the public health or safety. In any such case, Licensor shall use reasonable efforts to afford Licensee a reasonably equivalent alternate location. If Licensee shall fail to relocate any Wireless Installations as requested by the Licensor in accordance with the foregoing provision, Licensor shall be entitled to remove or relocate the Wireless Installations at Licensee's sole cost and expense, without further notice to Licensee. Licensee shall pay to the Licensor actual costs and expenses incurred by the Licensor in performing any removal work and any storage of Licensee's property after removal within sixty (60) days of the date of a written demand for and evidence substantiating this payment from the Licensor. Notwithstanding the foregoing, the costs of relocating the Licensee's Wireless Installations shall be borne by (i) Licensor if the relocation is for Licensor's benefit and not the result of subsection (a) through (c) above; and (ii) by a third party if the relocation is for the third party's benefit. To the extent the Licensor has actual knowledge thereof, the Licensor will attempt promptly to inform Licensee of the displacement or removal of any Pole on which any Wireless Installations is located. If the Municipal Facility is damaged or downed for any reason other than the negligence or willful misconduct of Licensor, and as a result is not able to safely hold the Wireless Installations, the Licensor will have no obligation to repair or replace such Municipal Facility for the use of Licensee's Wireless Installations. Licensee shall bear all risk of loss as a result of damaged or downed Municipal Facilities pursuant to §5.8 below, and may choose to replace such Municipal Facilities pursuant to the provisions of §4.

Notwithstanding any of the foregoing, in the event of an Emergency, Licensor will endeavor to provide as much notice to Licensee for the relocation of the Wireless Installation as warranted by the circumstances pertaining to the Emergency.

(l) In the event Licensee desires to relocate any Wireless Installation from one Municipal Facility to another, Licensee shall submit a written request to Licensor. Licensor will use reasonable efforts to accommodate Licensee in accordance with applicable Law.

(m) 5.5 Damages Caused by Licensee. Licensee shall, at its sole cost and expense and to the reasonable satisfaction of the Licensor: (a) remove, repair or replace any of its Wireless Installations that is damaged or becomes detached; and/or (b) repair any damage to ROW, Municipal Facilities or other property, whether public or private, caused by Licensee, its agents, employees or contractors in their actions relating to attachment, operation, repair or maintenance of Wireless Installations. If Licensee does not remove, repair or replace such damage to its Wireless Installations or to the ROW, Municipal Facilities or other property, the Licensor shall have the option, upon thirty (30) days prior written notice to Licensee, to perform or cause to be performed such removal, repair, or replacement on behalf of Licensee and shall charge Licensee for the actual and reasonable costs incurred by the Licensor. If such damage causes a public health or safety emergency, as reasonably determined by the Licensor, the Licensor may immediately perform reasonable and necessary repair or removal work on behalf of Licensee and will notify Licensee as soon as practicable.Upon the receipt of a demand for payment substantiating such costs by the Licensor,

Licensee shall, within sixty (60) days of such receipt, reimburse the Licensor for such costs. The terms of this provision shall survive the expiration, completion or earlier termination of this Agreement.

(n) 5.6 Change in Wireless Installations. If Licensee proposes to install Wireless Installations which are different in any material way from the then-existing Wireless Installations approved in the applicable Site Permit, then Licensee shall comply with all applicable Laws and obtain the written approval for the use and installation of the proposed Wireless Installation from the City's Community Development Director or her/his designee prior to its installation. Licensor shall approve, approve with conditions, or disapprove any modification or upgrade request in its sole discretion within sixty (60) days after the submission of a request and in the manner required under applicable Laws; provided, however, that the request shall be deemed approved if Licensor fails to approve or deny the request within sixty (60) days. Any such approval shall take the form of an amendment to the applicable Site Permit, provided such amendment and/or approval shall not be subject to any additional fees under this Agreement, including, but not limited to, an application fee. In addition to any other submittal requirements, and if requested by Licensor, Licensee shall provide "load" (structural) calculations for all Municipal Facilities upon which it intends to install Wireless Installations in the ROW, notwithstanding original installation or by way of Wireless Installation type changes. Notwithstanding the foregoing, in the event of an Emergency, Licensee may repair and make replacements or modifications to any Wireless Installation that does not materially increase the size, height, and weight of the Wireless Installation, exceed the structural capacity of the Municipal Facility as established in an approved Site Permit, involves only substitution of substantially similar Wireless Installations, and does not result in any substantial change to the external appearance without obtaining Licensor approval, additional applications or Site Permits; provided, however, that Licensee shall provide Licensor with as much advance notice as possible under the specific circumstances.

(o) 5.7 Termination of a Site Permit. Licensee shall have the right to terminate any Site Permit on thirty (30) days' notice to Licensor. Such notice shall be given to the Licensor in writing by certified mail, return receipt requested, and shall be effective upon the mailing of such notice by Licensee, or upon such later date as designated by Licensee in said notice. In the event of such termination, Licensee shall remove its Wireless Installations and restore the Municipal Facilities in accordance with §5.8 below. All Fees paid to said termination date shall be retained by Licensor and all Fees paid beyond said termination date shall be refunded to Licensee within thirty (30) days of the termination date. Upon such termination, the Site Permit shall be of no further force or effect except to the extent of the representations, warranties and indemnities made by each Party to the other hereunder.

(p) 5.8 Removal of Wireless Installations; and Restoration of Municipal Facilities and ROW. Within ninety (90) days after the expiration or earlier termination of a Site Permit, Licensee shall promptly, safely and carefully remove the Wireless Installations from all Municipal Facilities and the ROW and restore the Municipal Facilities and ROW to the condition that existed prior to installation, reasonable wear and tear and damage by casualty excepted. Such obligation of Licensee shall survive the expiration or earlier termination of this Agreement. Notwithstanding the foregoing, there shall be no obligation to restore conduit systems, electrical meters, and electrical wiring ("Electrical Fixtures") required to provide electrical power to the Municipal Facility in Site Permits, unless otherwise notified in writing by Licensor. Upon expiration or termination of a Site Permit, such Electrical Fixtures shall automatically become owned by, and property of Licensor.

(q) 5.9 Failure to Remove Wireless Installations or Restore Municipal Facilities. If Licensee fails to complete this removal and restoration work pursuant to Section 5.8 above, then the Licensor, upon written notice to Licensee, shall have the right at the Licensor's sole election, but not the obligation, to perform the removal and restoration work and charge Licensee for the actual costs and expenses, including, without limitation, reasonable administrative costs. Licensee shall pay to the Licensor actual costs and expenses incurred by the Licensor in performing any removal and restoration work and any storage of Licensee's property after removal within sixty (60) days of the date of a written demand for and evidence substantiating this payment from the Licensor. After the Licensor receives the reimbursement payment from Licensee for the removal work performed by the Licensor, the Licensor shall promptly make available to Licensee the property belonging to Licensee and removed by the Licensor pursuant to this Section at no

liability to the Licensor. If the Licensor does not receive reimbursement payment from Licensee within such sixty (60) days, or if Licensor does not elect to remove such items at the Licensor's cost after Licensee's failure to so remove pursuant to this Section, or if Licensee does not remove Licensee's property within ninety (90) days written notice to Licensee of such property being available by the Licensor after Licensee's payment of removal reimbursement as described above, any items of Licensee's property remaining on or about the ROW, Municipal Facilities, or stored by the Licensor after the Licensor's removal thereof may, at the Licensor's option, be deemed abandoned and the Licensor may dispose of such property in any manner permitted by Laws. Alternatively, the Licensor may elect to take title to abandoned property, provided that Licensee shall submit to the Licensor an instrument reasonably satisfactory to the Licensor transferring to the Licensor the ownership of such property. The provisions of this Section shall survive the expiration or earlier termination of this Agreement.

(r) 5.10 Risk of Loss. Licensee acknowledges and agrees that Licensee, subject to the terms of this Agreement bears all risks of loss or damage or relocation or replacement of its Wireless Installations and materials installed pursuant to this Agreement from any cause excepting Licensor or Licensor's employees', contractors', or agents' negligence or willful misconduct, and the Licensor shall not be liable for any cost of replacement or of repair to damaged Wireless Installations.

(s) 5.11 Costs To Rearrange/Adjust Facilities of Others. If a Person, other than Licensor, must rearrange or adjust any of its facilities to accommodate a new Wireless Installation, Licensee shall coordinate such activity at Licensee's sole expense; provided, however, that Licensee shall not be responsible for any third-party or Licensor costs necessary to correct third party or Licensor attachments that are non-compliant with Laws.

6. GENERAL LICENSEE OBLIGATIONS

6.1 Technical Requirements and Specifications. At its own expense, Licensee shall erect, install, repair and maintain its Wireless Installations in safe condition and good repair in accordance with (a) the requirements and specifications of Safety Codes; (b) Licensor's reasonable standards consistent with applicable Laws, and (c) any current or future rules or orders of the FCC, the State of California Public Utility Commission, or any other federal, state or local authority having jurisdiction. Changes to the requirements, specifications, standards, rules and orders in subsections (a), (b) and (c) shall not apply retroactively unless required by Laws, and Licensor shall give at least sixty (60) days' written notice of changes to the standards in subsections (b) and (c).

6.2 No Liens. Licensee will not allow to exist any lien with respect to any Municipal Facilities or other Licensor property or facility resulting from any work performed by or on behalf of Licensee pursuant to this Agreement, or any act or claim against Licensee or any of its contractors, agents, or customers. Licensee will, at its sole expense, promptly bond or otherwise discharge any such lien within thirty (30) days of receipt of written notice from Licensor of the existence of such lien.

6.3 Worker Qualifications; Responsibility for Agents and Contractors. Each Party shall ensure that its employees, agents or contractors which perform work in furtherance of this Agreement are adequately trained and skilled to access the Municipal Facilities in accordance with all applicable industry and governmental standards and regulations.

6.4 Records; Audits.

(a) Licensee will maintain complete records with respect to this Agreement and each of the Site Permits pursuant to all applicable Laws and shall maintain such records for a four year period after expiration or termination of this Agreement and Site Permits.

(b) The Licensor may require such additional reasonable non-confidential information, records, and documents from Licensee from time to time as are appropriate in order to reasonably monitor compliance with the terms of this Agreement.

(c) Licensee shall provide such records within twenty (20) business days of a request by the Licensor for production of the same unless additional time is reasonably needed by Licensee, in which case, the time period may be extended by the Licensor. If any person other than Licensee maintains records on Licensee's behalf, Licensee shall be responsible for making such records available to the Licensor for auditing purposes pursuant to this Section.

7. UTILITIES. Licensee shall be solely responsible for arrangement and payment for electric service necessary in connection with Wireless Installations, Additionally, Licensee shall have the right, at Licensee's sole cost, to replace existing lighting on a Municipal Facility utilized by Licensee either with LED or other form of energy saving lighting design reasonably approved by Licensor, and Licensor will own, operate, maintain and repair the replacement lighting.

(t) **8. OPERATION AND MAINTENANCE**

8.1. RF Emissions. Licensee's operation of its Wireless Installations will comply with all FCC regulations regarding RF emissions and exposure limitations. Licensee is allowed to install signage and other mitigation, such as a power cut-off switch on Municipal Facilities, to allow workers and third parties to avoid excess exposure to RF emissions. Except in an Emergency, Licensor's authorized field personnel will contact Licensee's designated point of contact with reasonable advance notice, but in no event less than one (1) business day in advance, to inform Licensee of the need for a temporary power-shut-down. In the event of an unplanned outage or cut-off of power or an Emergency, the power-down will be performed with such advance notice as practicable. Once the work has been completed and the worker(s) have departed the exposure area, the party who accomplished the power-down shall restore power and inform Licensee as soon as possible that power has been restored. The Parties acknowledge that they understand the vital nature of Licensee's Wireless Installations and agree to limit the frequency of power-downs and to restore power as promptly as much as reasonably possible.

Licensee shall be available to the staff employees of any Licensor department having jurisdiction over Licensee's activities 24 hours a day, seven days a week, regarding problems or complaints resulting from the attachment, installation, operation, maintenance, or removal of the Wireless Installations. Licensee's emergency contact telephone number is provided to the Licensor in §15.1.

8.2 Interference.

(u) Licensee equipment installed pursuant to this Agreement shall not damage or interfere in any way with Licensor property, Licensor's operations or the operations of prior-existing, third party installations. Licensor will reasonably cooperate with Licensor to carry out such activities as are necessary to correct the interference.

(v) Signal Interference. Licensee shall correct any such interference within forty-eight (48) hours of written notification of the interference. Upon the expiration of the forty-eight (48) hour cure period and until the cause of the interference is eliminated, Licensee shall cease operation of any equipment causing such interference until such interference is cured.

(w) Physical Interference. Licensor shall give Licensee thirty (30) days from the date of written notification to correct the interference after which the Licensor reserves the right to take any action it deems reasonably necessary to correct the interference, which could include revocation of the Site Permit.

(x) Licensor at all times reserves the right to take any action it deems necessary, in its sole discretion, to repair, maintain, alter, or improve the Municipal Facilities. Such actions may temporarily interfere with the operation of the Wireless Installations. Licensor will in all cases, other than emergencies, give Licensee thirty (30) days' written notification of such planned, non-emergency actions.

(e) Licensor will not permit its tenants, licensees, invitees, agents or independent contractors to cause Interference with Licensee's existing Wireless Installations, Licensee's use of the Municipal Facility, or Licensee's ability to comply with the terms and conditions of this Agreement. If Licensee reasonably determines that Interference is occurring, then Licensor will meet and confer with Licensee within five (5) days of Licensor's receipt of notice of Interference from Licensee, and otherwise

diligently work in good faith with Licensee to determine the root cause of the Interference and to develop workable solutions to resolve the Interference in a mutually acceptable manner.

(y) **9. ABANDONMENT.** If Licensor determines to Abandon any Municipal Facility and Licensor so determines that the Municipal Facility does not need to be permanently removed for reasons of public safety or security, then Licensor shall give Licensee ninety (90) days' prior written notice of Licensor's intent to Abandon the Municipal Facility, as the case may be. Within such time, Licensee may remove or otherwise dispose of its Wireless Installations at which time the Site Permit shall automatically terminate without further liability to Licensee.

(z) **10. INSURANCE**

10.1 Certificate of Insurance. Licensee shall at its sole expense maintain the insurance coverage and limits required by this Section during the Term of this Agreement. Licensee agrees to procure the required insurance from an insurance company eligible to do business in California having and maintaining an A.M. Best rating of at least A- VII and deliver to a Licensor a Certificate of Insurance evidencing the types of insurance and policy limits required pursuant to Licensor's standard insurance requirements, which may be amended from time to time but no more than once every three (3) years with thirty (30) days' prior written notice to Licensee.

10.2 Required Insurance.

(a) Workers' Compensation and Employer's Liability insurance, as required by statute, with Employer's Liability limits of $500,000 each accident, $500,000 by disease policy limits, and $500,000 by disease each employee. To the extent allowed by Laws, the policy must include a blanket waiver of subrogation in favor of Licensor.

(b) Commercial General Liability insurance written on Insurance Services Office (ISO) Form CG 00 01 or a substitute form providing equivalent coverage, with limits of:

$2,000,000 General Aggregate Limit

$1,000,000 Each Occurrence

$1,000,000 Each Occurrence - Personal Injury and Advertising Injury

$2,000,000 Products/Completed Operations Aggregate Limit

The required Commercial General Liability policy must include Licensor as an additional insured on a primary and non-contributory basis and a waiver of subrogation in favor of Licensor.

(c) Business Automobile Liability insurance with limits of $1,000,000 Combined Single Limit for each Accident for Bodily Injury and Property Damage, extending to all company owned, leased, and non-owned vehicles.

10.3 Notice of Cancellation. Licensee may meet the required insurance coverage and limits with any combination of primary and umbrella/excess liability insurance. Licensee shall provide at least thirty (30) days advance written notice of cancellation or non-renewal of any required insurance that is not replaced. Notwithstanding the foregoing, Licensee may self-insure the required insurance under the same terms and conditions as outlined above.

(aa) **12. INDEMNIFICATION**

12.1 Indemnification By Licensee. To the extent permitted by Laws, Licensee shall indemnify, hold harmless and, at Licensor's sole option, defend Licensor Indemnitees, and each of them, from and against any and all liabilities, damages or claims for damage, including but not limited to all actual and reasonable costs, attorneys' fees, and other charges and expenditures that Licensor Indemnitees, or any of them, may incur, asserted by third parties against Licensor Indemnitees, or any of them, by reason of the negligent installation, operation, use, repair, or removal of Wireless Installations or breach of the terms of this Agreement by Licensee, including acts or omissions by its agents, contractors, or subcontractors, except

to the extent that such liabilities, damages or claims are a result of the negligence or willful misconduct of Licensor Indemnitees, or any of them.

13. DEFAULT AND TERMINATION

13.1 Licensee's Default and Licensor's Remedies. If Licensee does not cure its Default, then thereafter Licensor may elect any of the following remedies:

(a) suspend Licensee's access to the Municipal Facility to which the Default pertains;

(b) terminate the specific Site Permit(s) or affected portion thereof covering the Municipal Facility(ies) to which the Default pertains;

(c) require Licensee's obligation to which the Default has been declared to be specifically performed; or

(d) maintain an action at law against Licensee for damages directly incurred by Licensor arising directly from Licensee's uncured Default.

13.2 Licensor's Default and Licensee's Remedies. If Licensor does not cure its Default, then thereafter, Licensee may elect to pursue any rights or remedies available to Licensee at law or in equity.

13.3 Voluntary Termination of Site Permit.

(a) A Site Permit may be terminated by Licensee for any reason or no reason, and without further liability to Licensee, at any time prior to the Commencement Date effective upon written notice to Licensor.

(b) A Site Permit may be terminated by Licensee after the Commencement Date for any reason or no reason effective upon the later of (i) thirty (30) days' following written notice to Licensor and (ii) the date of removal of the Wireless Installation. In the event Licensee has paid a Fee to Licensor for the use of the Licensed Site, then Licensor shall have the right to retain the Fee without refund or other credit to Licensee.

14. CASUALTY. In the event of damage to a Municipal Facility due to a Casualty Event that cannot reasonably be expected to be repaired within forty-five (45) days following such Casualty Event or which Licensor elects not to repair, or if such Casualty Event is reasonably expected to disrupt Licensee's operations on the Municipal Facility for more than forty-five (45) days, then Licensee may, at any time following such Casualty Event; (i) terminate the applicable Site Permit or affected portion thereof upon fifteen (15) days' written notice to Licensor; or (ii) submit a new Site Permit application for an alternate location equivalent to Licensee's current use of the Municipal Facility, subject to proper permitting and application fees. If Licensee elects to terminate the Site Permit, notice of termination shall cause the applicable Site Permit or affected portion thereof to terminate with the same force and effect as though the date set forth in such notice were the date originally set as the expiration date of the applicable Site Permit. Licensee will be entitled to collect all insurance proceeds payable to Licensee on account thereof, and to be reimbursed for any prepaid Fee on a pro rata basis. If Licensee does not elect to terminate the applicable Site Permit, then the Fee shall fully abate during the period of repair following such Casualty Event until the date that the Wireless Installation is returned to full on-air operation on the Licensed Site in the ordinary course of Licensee's business.

15. MISCELLANEOUS PROVISIONS

15.1 Notices. All notices, requests and demands hereunder will be given by first class certified or registered mail, return receipt requested, or by a nationally recognized overnight courier, postage prepaid, to be effective when properly sent and received, refused or returned undelivered. Notices will be addressed to the Parties as follows:

If to Licensee (including invoices):	**If to Licensor:**
_____	_____ _____

Attn: _____ Re: Wireless Installation on Municipal Facilities (City of Oxnard) (CA) Address	_____ _____
With a copy to the _____ Legal Department: _____ Attn: _____ Re: Wireless Installation on Municipal Facilities (City of Oxnard) (CA) Address	With a copy to: City Attorney City of Oxnard 305 W. Third Street, Suite 100E Oxnard, California 93030

Contact Number for day to day operation:

Licensor: _____
Licensee: 1-800-xxx-xxxx

Any Party may change its address or other contact information at any time by giving the other Party, and Persons named above, written notice of said change.

15.2 Force Majeure. Time periods for performance under this Agreement shall be deemed extended day for day for time lost attributable to any delay resulting from any Event of Force Majeure.

15.3 Assignment and Transfer. This Agreement shall be binding upon, and inure to the benefit of, the successors and assigns of the Parties. Except as otherwise provided in this Agreement, neither Party shall assign this Agreement or its rights or obligations to any firm, corporation, individual, or other entity, without the written consent of the other Party, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, upon thirty (30) days' written notice, either Party may assign this Agreement or its rights or obligations to (a) an Affiliate or (b) in connection with the sale or other transfer of substantially all of Licensee's assets in the FCC market area where the Municipal Facilities are located.

15.4 Compliance with Laws. Licensee and Licensor agree to comply with all Laws.

15.5 Applicable Law. This Agreement shall be interpreted, construed, and enforced, in accordance with the laws of the state where the Municipal Facilities are located without regard to its conflict of laws principles, and, where applicable, federal law.

15.6 Change of Law. Either Party may, upon thirty (30) days' written notice, require that the terms of this Agreement which are affected by any New Law be renegotiated to conform to the New Law on a going forward basis for all existing and new Wireless Installations, unless the New Law requires retroactive application, except that, notwithstanding a New Law, the Fee shall remain unchanged for any Wireless Installations in place as of the time the New Law became effective. In the event that the Parties are unable to agree upon such new rates, terms of conditions within ninety (90) days after such notice, then any rates contained in the New Law shall apply as of the effective date of the New Law forward (except as to the Fee for any Wireless Installations in place as of the time the New Law became effective) until the negotiations are completed or a Party obtains a ruling regarding the appropriate conforming terms from a commission or court of competent jurisdiction. Except as provided in the preceding sentence, all terms in the existing Agreement shall remain in effect while the Parties are negotiating.

15.7 Exhibits. In the event of any inconsistency between the provisions of this Agreement and any Exhibits attached hereto, the provisions of this Agreement shall supersede the provisions of any such incorporated Exhibits unless such Exhibit specifies otherwise.

15.8 Waiver; Severability. No provision of this Agreement may be waived except in a writing signed by both Parties. The failure of either Party to insist on the strict enforcement of any provision of this Agreement shall not constitute a waiver of any provision. If any portion of this Agreement is found to be

unenforceable, the remaining portions shall remain in effect, and the Parties shall begin negotiations for a replacement of the invalid or unenforceable portion.

15.9 Survival. The terms and provisions of this Agreement that by their nature require performance by either Party after the termination or expiration of this Agreement, shall be and remain enforceable notwithstanding such termination or expiration of this Agreement for any reason whatsoever.

15.10 Entire Agreement; Amendments. This Agreement (including the Exhibits hereto) embodies the entire agreement between Licensee and Licensor with respect to the subject matter of this Agreement and supersedes all prior and contemporaneous agreements and understandings, oral or written, with respect thereto. Each Party acknowledges that the other Party has not made any representations other than those contained herein. This Agreement may not be amended or modified orally, but only by an agreement in writing signed by the Party or Parties against whom any waiver, change, amendment, modification, or discharge may be sought to be enforced.

15.11 Public Records. Licensee acknowledges that information submitted to the Licensor may be open to public inspection and copying under state law including, but not limited to the California Public Records Act.. Licensee may identify and prominently mark information, such as trade secrets, proprietary financial records, customer information or technical information, submitted to the Licensor as confidential; provided, however, that this confidentiality limitation shall not apply to submissions of information to courts or regulatory agencies, as and to the extent disclosure of any such terms and conditions is reasonably necessary to allow either party to enforce the other party's compliance with its obligations under this Agreement.

15.12 Execution in Counterparts. This Agreement may be executed in multiple counterparts, including by counterpart facsimiles or scanned email counterpart signature, each of which shall be deemed an original, and all such counterparts once assembled together shall constitute one integrated instrument.

[SIGNATURES APPEAR ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed as of the Effective Date.

[FULL NAME OF LICENSOR] By:_____ Name:_____ Its:_____ Date:_____	**_____** **By: _____** **Its: Manager** By:_____ Name:_____ Its:_____ Date:_____

EXHIBIT 1

DEFINED TERMS

As used herein, the following capitalized terms in the Agreement have the meaning ascribed to them below.

"Abandon" means to permanently relinquish ownership of a Municipal Facility in its then existing location.

"Acknowledgment" means a written memorandum signed by the Parties confirming the Commencement Date and the date of expiration of the Site Permit.

"Affiliate" means any entity that controls, is controlled by, or is under common control with a Party.

"Agreement Initial Term" means an initial term of ten (10) years.

"Annual Term" means a term of one (1) year.

"Casualty Event" means any casualty, fire, act of God, or other harm affecting a Municipal Facility licensed in whole or in part to Licensee pursuant to a Site Permit.

"Commencement Date" means the day Licensor approves the construction permit for the Wireless Installation at a particular location under a Site Permit.

"Days" means calendar days. If deadline or other date falls on a non-business day (including weekends, holidays recognized by the federal government, and holidays recognized by the state where the Municipal Facility is located), that date shall be extended to the next business day.

"Default" means the failure by a Party to perform any material term of condition of this Agreement where such failure continues for a period of more than sixty (60) days after receipt of written notice from the other Party of such failure identified with reasonable specificity as to the material term or condition of this Agreement which the Party is alleged to have failed to perform Notwithstanding the foregoing, no Default will be deemed to exist if a Party has commenced to cure the alleged failure to perform within such sixty (60) day period, and thereafter such efforts are prosecuted to completion with reasonable diligence. Delay in curing an alleged failure to perform will be excused if due to causes beyond the reasonable control of the Party again whom the failure to perform has been alleged.

"Effective Date" means the latest date in the signature blocks in the Agreement.

"Emergency" means a situation in which there is an imminent threat of injury to person or property, or loss of life.

"Event of Force Majeure" means any act of God, strike, civil riot, fire, flood, material or labor shortage, restriction by governmental authority, and any other cause not within the reasonable control of the Party whose performance is required under the Agreement.

"FCC" means the Federal Communications Commission.

"FCC 2018 Order" means the Federal Communications Commission's Declaratory Ruling and Third Report and Order, FCC 18-133, Released September 27, 2018.

"Fee" means the annual payment for Licensee's Permitted Use of the Municipal Facility at the Licensed Site.

"Interference" means any material and adverse physical obstruction or impairment with the radio signals or operation of Licensee's Wireless Installation utilizing a Municipal Facility authorized to be used by Licensee pursuant to a Site Permit.

"Laws" means all federal, state and local laws, orders, rules and regulations applicable to Licensee's use of the Wireless Installation on the Municipal Facility and Licensor's ownership and use of the Municipal Facility and any other improvements or equipment in the ROW, as the case may be.

"Licensed Site" means the areas approved for Licensee's Permitted Use as described or depicted in a Site Permit.

"Licensee Indemnitees" means Licensee, its employees, affiliates, officers, directors, successors and assigns.

"Licensee-Installed Poles" means those certain poles installed by Licensee in the ROW, which have been pre-approved by Licensor, and installed and transferred to Licensor by dedication, all in accordance with applicable Law, the Oxnard City Code and any other applicable requirements of Licensor.

"Licensor Indemnitees" means Licensor, its officers, officials and employees.

"Licensor's Cost" means Licensor's cost calculated pursuant to the terms and conditions of the FCC 2018 Order.

"Municipal Facility(ies)" means Licensor-owned structures, objects, and equipment in the ROW, including, but not limited to, street lights, traffic control structures, banners, street furniture, bus stops, billboards, Licensee-Installed Poles, or other poles, lighting fixtures, or electroliers located within the ROW, and may refer to such facilities in the singular or plural, as appropriate to the context in which used.

"NEC" means the National Electric Code.

"NESC" means the National Electrical Safety Code.

"New Laws" means any legislative, regulatory, judicial, or other action affecting the rights or obligations of the Parties, or establishing rates, terms or conditions for the construction, operation, maintenance, repair or replacement of Wireless Installation on public infrastructure or in the right-of-way, that differ, in any material respect from the rates, terms or conditions of the Agreement.

"Person" or "Persons" means any person or entity;

"Parties" means Licensor and License collectively.

"Party" means individually Licensor and Licensee.

"Permitted Use" means the transmission and reception of communications signals, and the installation, construction, modification, maintenance, operation, repair, replacement and upgrade of the Wireless Installation necessary for the successful and secure use of the Licensor's Municipal Facilities.

"RF" means radio frequency.

"Rights-of-Way" or "ROW" means an area on, below or above a public street, alley, sidewalk or parkway that is owned or granted by easement, operated or controlled by the Licensor for wireless telecommunications facilities.

"Safety Codes" means collectively the NEC, NESC, and any and all other applicable regulatory codes for safe practices when performing work on or near a Municipal Facility.

"Site Permit" shall mean a permit issued by the Licensor with regard to a specific Wireless Installation, the form of which is attached hereto as Exhibit 2, which shall be subject to the terms and conditions of this Agreement. Licensee will maintain a list of all Site Permits pursuant to this Agreement.

"Term" means the Agreement Initial Term and any renewal terms exercised pursuant to Section 2.1 of the Agreement.

"Wireless Installation" means antennas, communications equipment, electric and communications cables, and related accessories and improvements, including facilities that operate on FCC-approved frequencies in the bands authorized for commercial wireless communication services pursuant to FCC licenses issued to Licensee, and all associated equipment, located in, under, upon, adjacent to or through a Municipal

Facility owned or controlled by Licensor pursuant to a Site Permit (in accordance with Section 4.2 hereof) approved in writing by Licensor.

EXHIBIT 2

FORM OF SITE PERMIT

SITE PERMIT NO. [INSERT NUMBER IN CONSECUTIVE ORDER]

POLE NUMBER: _____

APPROXIMATE ADDRESS OF POLE: _____

Pursuant to that certain Master License Agreement between the City of Oxnard, a California

municipal corporation (the "City") and [Wireless Carrier] ("Licensee"), Licensee submits to the City two partially executed counterparts of this Site Permit, together with all the following materials listed below, as its Site Permit application in accordance with Section 1 (Grant of License) under the Master License Agreement:

1. Exhibit 3, which designates a Site Permit Location that the Licensee seeks to be included in the License Area under this Site Permit;

2. Exhibit 4, which includes a conceptual plan for all Licensee's Equipment (but excluding any makes and model numbers) to be installed in the License Area, subject to

Regulatory Approvals;

3. A Site Permit Fee; and

4. Radio & Antenna Equipment Specifications.

Licensee acknowledges that: (1) this Site Permit will not be effective until the City returns a fully executed copy to Licensee; and (2) Licensee will not have the right to access or install Equipment on the License Area until after Licensee has: (a) submitted a complete Acknowledgment Letter to the City with all information and funds required; (b) submitted insurance information to the City as specified in Section 10 (Insurance) of the Master License Agreement; and (c) the City has provided notice to proceed by returning to Licensee a countersigned copy of the Acknowledgment Letter.

This Site Permit is executed and effective on the last date written below and, upon full execution will be the City's authorization for the City to begin its review of the Pole Locations and plans and specifications proposed in this Site Permit. This Site Permit shall expire if either of the following conditions are not met:

1. Licensee submits has not completed applications for an Encroachment Permit; or

2. Construction of Equipment has not commenced within 180 calendar days from executed date of the Acknowledgment Letter.

EXHIBIT 3

POLE LOCATIONS *I* LICENSE AREA

Pole License No. ___

[Licensee to show proposed pole location requested in this Site Permit on a City of Oxnard Base Map, Pole number, and the latitude and longitude coordinates of the pole.]

EXHIBIT 4

FORM OF ACKNOWLEDGEMENT LETTER

[Licensee to complete and submit after Regulatory Approvals have been obtained]

[insert date]

[insert addressee information]

RE: Pole License No.

Dear [City Manager]:

This letter will confirm the following: (1) that Licensee has obtained all the Regulatory Approvals required for the Permitted Use under this Site Permit, copies of which are attached to this letter, as specified below; and (2) the Commencement Date of this Site Permit is *[insert date],* which is the first day of the month after Licensee obtained all Regulatory Approvals.

This letter also confirms that Licensee has submitted all required insurance information to the City. Payment pursuant to Section 3 (Charges, Billing, and Payment) of the Master License Agreement for all fees associated with this Site Permit will be provided accordingly.

Please acknowledge the City's receipt of this letter and the items listed below, and issue the City's approval for Licensee to begin installation of Equipment on the License Area by signing and returning a copy of this letter.

Sincerely,

[insert name]

[insert title]

Enc.

[ ] *[insert al/ required Regulatory Approvals]*

[ ] Insurance certificates

[ ] Contractor's bonds and insurance certificates

City Acknowledgement:

Site Permit Process and Design Standards for Small Cell Facilities on Municipal Facilities

1. An application for a Site Permit for small cell facilities shall be deemed incomplete unless it includes all information deemed required by the Community Development Department to review the application. The Community Development Department shall prepare or cause to be prepared a detailed list of required information and shall make such list publicly available to facilitate the timely processing of applications.

   This material shall include, but is not necessarily limited to, the following:
   a. An application, in a form to be provided by the Community Development Department, that includes all requested information; and
   b. A map showing the location of the proposed small cell facilities; and
   c. A photo showing the proposed location of the small cell facilities; and
   d. A photosimulation demonstrating that the small cell facilities will comply with the design standards described herein; and
   e. Documentation identifying the owner of the Structure and demonstrating that the small cell facilities conform to the design and co-location restrictions of the Structure owner(s).
   f. Construction details, including a soils report and a structural analysis signed by qualified Professional Engineer(s), demonstrating that the Structure will be structurally sound, as defined in these regulations, and will not have a significant risk of structural failure after installation of the small cell facilities; and
   g. Details regarding the connection of electrical and communications transmission lines to the site; and
   h. Details relating to any closures of roads or sidewalks that will be necessary due to the proposed construction; and
   i. A study demonstrating that the small cell facilities will not emit radiofrequency emissions that will, either individually or cumulatively with other already installed telecommunications facilities, expose any member of the public to radiofrequency emissions in excess of those permitted under FCC regulations; and
   j. Proof of insurance pursuant to City specifications as may be amended from time-to-time to defend, indemnify, and hold harmless the City for its facility, and name the City and its officers and employees as additional insured by endorsement; and
   k. Any applicable permit review fees as adopted by City Council.

2. The Community Development Department shall review the application to confirm compliance with City Ordinances and regulations. Installation of small cell facilities shall conform to the following minimum design standards:
    a. Small cell facilities (facility) shall be designed, installed and located so as to minimize adverse visual impacts and shall not contain advertising material of any kind. The facility must not cause severe negative visual impact as determined by the City.
    b. All wireless communication facilities shall be located entirely on the pole.
    c. An antennae(s) is recommended to be mounted on top of the pole with an antenna shroud.
    d. The antennae shroud shall not impinge the removal of the mast arm.
    e. If permitted by Southern California Edison (SCE) or the applicable utility provider and to the extent technically feasible, the facility power must be connected to a SCE or such utility provider smart meter.
    f. The SCE disconnect switch shall be attached to the pole at a minimum and a maximum height of 8 to 10 feet, respectively, above grade.
    g. The facility, including the antennae shroud and brackets, must match the color of the pole and the material must be constructed out of non-reflective materials.
    h. The facility must be high quality, safe, fire resistant, modern in design and attractive in appearance.
    i. The facility must not interfere with City operations, i.e. sign and signal visibility, traffic signals and surveillance camera operations or systems communications.
    j. The facility must be designed in accordance with the requirements for streetlight facilities and appurtenances including hardware, corrosion protection, signs, amd labels and matching finish.
    k. Small cell facilities shall be constructed of, painted, or otherwise treated with anti-graffiti materials, including, but not limited to, graffiti resistant paints or finishes. Graffiti on small cell facilities, including Structures and Equipment, shall be removed within forty-eight hours of being reported. All Structures shall have a decal or permanent sticker (maximum 6 square inches) with the small cell facilities operator’s graffiti abatement contact information affixed.
    l. Small cell facilities may not include any type of lighted signal, lights, or other illumination, except as required by federal or state law.
    m. Soils and structural analysis shall be prepared and stamped by a qualified Professional Engineer. The analysis shall include plans and specifications that shall include, at a minimum, the size, weight, mounting method, method of providing electrical power (including placement of any cables),

estimated monthly electrical use, radiofrequency radiation, method of attaching to the Structure if required for electrical power, and compliance with manufacturer's specification for such Structure. Licensee shall not overload the structural member of any Structure so as to cause any undue or serious stress or strain to the Structure, or any part thereof, and shall demonstrate compliance with specifications issued by the manufacturer of such Structure, if applicable. The City shall have the right, at any time, to make a determination whether the Structure, or any part thereof, is being overloaded so as to cause undue or serious stress or strain on the Structure or any part thereof. The decision of the City shall be final and binding on the Licensee. If in the opinion of the City the stress or strain may endanger or injure the Structure, or any part thereof, Licensee agrees, at its sole cost, to immediately relieve the stress or strain by lightening the load, provide structural reinforcement in a manner satisfactory to City or install a replacement Structure. If any of Licensee's Network Equipment and facilities fails to meet applicable legal or City requirements, Licensee shall promptly, at its own cost, replace such equipment and facilities with compliant equipment and facilities.

n. Before issuance of a permit, proposals for small cell facilities attached to a structure in the right-of-way must demonstrate that the proposed small cell facilities will comply with all of the following:
    i. All work shall be done in a manner consistent with the City's Fiber Master Plan as adopted by the City Council on May 5, 2020, and as may be amended subsequently.
    ii. All fiber and electrical infrastructure shall be installed underground, except where connection may be made to preexisting, immediately adjacent overhead electrical, telephone, or other wire/fiber service via a service drop. Applicants may not add new overhead electrical or fiber lines except when immediately adjacent to existing lines.
    iii. Except for Antennas and any Equipment necessary to screen said Antennas, all Equipment must be screened. Whenever feasible, as determined by the Community Development Director, Equipment shall be installed in an underground vault. Underground vault vents must be flush to the ground. If an underground installation is infeasible, as determined by the Community Development Director, Equipment shall be attached to the Structure and screened from view. Screening shall be accomplished in a manner consistent with the design of the Structure – in the case of decorative or architecturally enhanced street lights or other Structures, the screening shall incorporate design elements of the existing

Structure. Above-ground cabinets not mounted on a Structure are prohibited.

iv. The small cell facilities Antenna(s) shall be screened with a solid, opaque covering that has been colored to blend with the structure upon which the facility is mounted and other streetscape or surrounding features to the extent feasible. The covering small be no larger than is reasonably necessary to fully enclose the antennas and shall not exceed twice the width of the existing structure immediately abutting the location where the small cell facility would be attached or increase the height of the Structure by more than 20%. When mounted on architecturally enhanced Structures (such as decorative streetlights), the small cell facilities and its coverings shall be designed so that, in the opinion of the Community Development Department, the aesthetic quality of the Structure has been preserved. For reasons of public safety, including routine and emergency maintenance, installation on any part of a Structure supporting signs or devices used to control or direct vehicle, pedestrian, or other traffic is prohibited.

v. If an applicant proposes to replace an existing Structure in order to accommodate a small cell facilities, the new Structure shall match the height, width, appearance, and neighborhood characteristics of the original Structure. Any previous function of the previous structure (such as a street light) shall be incorporated into the replacement structure in accordance with current City standards.

vi. New Structures may not be constructed or utilized unless it is demonstrated conclusively by the Applicant that no existing structure can accommodate the small cell facilities, that replacement of the existing structure is infeasible, and that these regulations would otherwise “effectively prohibit” the provision of wireless service if the new Structure is not permitted. The height and width of the structure without the Antenna or covering shall be equal to the height and width of the nearest City street light mounted on a City-owned Structure. The new Structure shall also incorporate design elements of the existing nearby Structure in the design of the new Structure. Small cell facilities on new Structures shall meet the same design guidelines as those installed on existing structures.

vii. Wires and cables must enter Structures from below ground and must run inside the Structure. All electrical connections to the facilities shall be metered separately from City’s electrical service

and shall have a separate shut-off device located at the Structure which allows for power to be shut off to the small cell facilities without impacting any other operations of the Structure upon which the small cell facilities are mounted. City staff shall be provided access to this shut-off device so that power may be quickly shut off in an emergency situation.

viii. The installation shall not interfere with the public's use and enjoyment of the public right-of-way or the continued good functioning of existing subterranean infrastructure. Applications shall demonstrate that, at a minimum:

1. Applicant's proposal will allow parking and appurtenant door opening adjacent to the Structure.
2. Applicant's proposal will comply with all American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements for the health, safety, and welfare of pedestrians and drivers.
3. Applicant's proposal will not block or interfere with the use, maintenance and/or repair of fire hydrants, street lights and other existing facilities.
4. Applicant's proposal will not restrict sidewalk access or parking when access panels and doors are open.
5. Applicant's proposal will comply with all state, federal and local regulations regarding Americans with Disability Act (ADA) accessibility, providing a minimum of four feet width for sidewalk pedestrians with a cross slope not to exceed 2%.

3. If an application is found to be incomplete or not in compliance with these regulations, City shall notify the applicant and provide a written list of the reasons for the finding(s) of incompleteness and/or noncompliance. The applicant may correct any identified deficiencies and resubmit the application for further review, upon which the City will again review the materials and either approve the application or provide notice as described above.

4. The City may issue to an Applicant a Site Permit for a small cell facility once it has been demonstrated to the satisfaction of the Community Development Department that the requirements specified herein have been met. Following this approval, the Applicant shall do the following:
   a. The Applicant shall provide contact information to the City for the construction and the ongoing operation of the site.

b. The Applicant shall pay to the City of Oxnard all required fees.
c. The Applicant shall perform the work at the site in a manner that enables City staff to inspect the work being performed. The Community Development Department shall specify in writing the inspections that need to be performed and shall cause these inspections to be performed. The Applicant or their representative shall notify the City when their work is ready for inspection. The Community Development Department may require additional funds to be paid if the work is of such quality as to necessitate a number of inspections that the Community Development Department deems to be excessive.
d. Upon completion of the small cell facilities, the Applicant shall provide to the City a radiofrequency study to verify that the proposed facility is operating in accordance with the standards set by federal law at the time of the study. If the study concludes that the radiofrequency emissions exceed federal standards for such emissions, the facility shall be shut down immediately and shall not resume operation until it is demonstrated to the satisfaction of the Community Development Department that the facility will operate in accordance with federal law.
e. In the event that these steps are not completed within six months of the issuance of the Site Permit, the Community Development Department may revoke the small cell facilities Site Permit.

5. The City may include in a small cell facilities Site Permit such conditions, in addition to those already set forth in state and federal law, as may be required to govern the construction, installation, or maintenance of small cell facilities in the Public Rights-of-Way, and to protect and benefit the public health, safety, and welfare. Such conditions may also govern the installation and use of equipment that is not located on a Structure, but that is deemed necessary for the use and maintenance of a permitted small cell facility.

6. If the Applicant believes that the application of any particular provision of these regulations to a particular application would have the impact of “effectively prohibiting” the provision of wireless service, the Applicant may appeal the denial of any application to the Director of the Community Development Department within ten days of such denial. This appeal shall include, in addition to the information included in the application, a narrative identifying the provision which allegedly has this impact, provides an analysis demonstrating why application of the provision would “effectively prohibit” the installation, and provides an analysis demonstrating that no reasonable alternative exists for the provision of wireless telecommunications service. The Community Development Department may

approve the application if it finds that the application of the provision to this particular location would “effectively prohibit” the provision of wireless services. The Community Development Department may request, and Applicant shall provide, any information deemed reasonably necessary by the Community Development Department to make an informed decision. Appeals shall be limited to determining whether the application of a particular provision of these regulations would “effectively prohibit” the provision of wireless service if enforced, and for no other claim or reason.The Community Development Director may deny the application if he/she finds that the Applicant has not successfully proven that the application of these regulations would “effectively prohibit” the provision of wireless services. The City may charge a fee to cover its actual costs in administering an appeal under this Section.

7. Applicant shall ensure the installation of small cell facilities meet conditions as may be required to control the construction, installation, maintenance, repair and removal of such facilities in a public right-of-way so as to protect and benefit the public health, safety, and welfare. The terms and conditions of any such permit issued shall be subject to these requirements and limited to those areas consistent with the City’s authority under applicable law. These conditions shall include, but not be limited to, the following:
    a. Normal and routine access to, and use, operation, maintenance and repair of small cell facilities that does not impact vehicle or pedestrian traffic patterns shall be considered as part of the permitted installation, and no new permit shall be required for any such access, use, operation, maintenance or repair.
    b. A new permit shall be required for upgrades, relocations, and/or modifications of the installed facilities, unless the City Engineer or his/her designee determines that such upgrade, relocation, and/or modification is minor, insignificant, and insubstantial. Permittee may replace approved Equipment with like-kind, similar Equipment, without obtaining a new permit if such like-kind, similar Equipment serves a substantially equivalent function, is the same or smaller in size, has the same or fewer number of antennas than approved by the City, and presents a substantially similar appearance to the Equipment it replaces. All modifications and replacements remain subject to these requirements and non-discretionary structural and safety codes.
    c. Each year, at an interval to be specified by the City, the Applicant or their successor shall provide documentation demonstrating that insurance has been maintained on all small cell facilities (including Structures) in accordance with City specifications, as may be amended from time-to-

time. Requirements for insurance coverage shall be determined by the City Attorney's Office, who shall make such requirements publicly available.

8. A permit for the installation of a small cell facilities may be transferred to a successor, assign, or affiliate of the permittee, provided that any transferee holds and provides evidence of all required FCC and any other required governmental approvals or licenses necessary to provide telecommunication services.

Master License Agreement For Wireless Installations on Municipal Facilities

Isidro Figueroa, Principal Planner
Vyto Adomaitis, Community Development Director

Public Works and Transportation Committee
March 23, 2021

CITY OF OXNARD CALIFORNIA

Background

- Wireless technology evolving rapidly.
- New technology will require the upgrade to existing facilities and construction of new facilities to include:
  - Numerous small cell facilities located in the public right-of-way on existing infrastructure such as street lights and traffic signals.

Background

- Local government's authority regarding the regulation of wireless deployment is restrained by Federal and State mandates and laws:
  - State passed legislation that allows applications to be "deemed granted" if a City fails to make a determination in the time limits set by the Federal Communications Commission (FCC) shot-clocks
  - City may not regulate wireless facilities on the basis of radio frequency (RF) emissions if facilities comply with the FCC's emissions regulations
  - City retains some discretion over aesthetic placement of cellular telecommunications facilities

FCC Administrative Order- October 15, 2018

- Cities cannot "prohibit or have the effect of prohibiting" the development of wireless networks.
- The City must treat all wireless service providers equally -
  - Establishing a Master License Agreement (MLA) to ensure this.
- Cities must allow wireless communications companies to use City infrastructure and must allow wireless telecommunications companies to construct new infrastructure in the right-of-way.
- Order took effect January 2019 - City has negotiated MLA w/ carriers.

Purpose of Master License Agreement

- Master License Agreement (MLA)
  - Comprehensive document that contains uniform terms and conditions applicable to all small cell facilities installed on City municipal facilities.
  - Establishes the procedures for issuance of a license to use City municipal facilities (i.e. street lights, traffic signals, other right-of-way structures).
- Staff has negotiated MLA with major carriers and ready to be review by the City Council.

MLA - 4G & 5G Small Cell Facilities Examples

MLA

- MLA establishes one set of rules and procedures for issuance of a license to use City municipal facilities.
- Site Permits issued pursuant to the MLA would identify the licensed municipal facility and contain detailed exhibits for the site plans, insurance documentation, surety, and other materials that are unique to the site.
- Providers benefit by reducing costs associated with negotiating individual City municipal facilities licenses and allowing deployment of small cell facilities with a streamlined process.

MLA Key Components

- **Term**- Ten (10) years.
- **Fees**- $270.00 per Wireless Installation located in the City's right-of-way (ROW) for each year of the Site Permit term.
- **Construction**- Licensee shall comply with all applicable Laws related to the construction, installation, operation, maintenance, and repair of Licensee's Wireless Installations installed in the ROW and on Municipal Facilities.
- **Operations and Maintenance**- Licensee's operation of its Wireless Installations will comply with all FCC regulations regarding RF emissions and exposure limitations. Licensee equipment installed pursuant to the MLA shall not damage or interfere in any way with City property and operations or the operations of prior-existing, third party installations.

Design Standards

- Proposed Design Standards establish design standards intended to minimize the aesthetic impacts of these small cell facilities without “effectively prohibiting” the provision of wireless service.
  - Application for a Site Permit
  - Require design standards that will minimize adverse visual impacts
  - Ensure the installation of small cell facilities protect and benefit the public health, safety, and welfare.

Environmental Review

- MLA, inclusive of the Design Standards are exempt from the California Environmental Quality Act (CEQA) pursuant to Section 15303 (New Construction or Conversion of Small Structures)as the MLA would facilitate new equipment on City facilities (i.e. street lights).

Recommendation/ Next Steps

- That the Public Works & Transportation Committee:
  - Receive a summary report on a draft MLA for Wireless Installation on Municipal Facilities; and
  - Provide input on the draft MLA for Wireless Installation on Municipal Facilities.
- Next Steps
  - Forward the MLA and Design Standards to the City Council for review and consideration.

CITY OF OXNARD CALIFORNIA

Discussion