

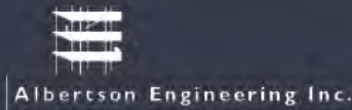


# US14A/US85/DEADWOOD BOX STUDY AND ENVIRONMENTAL STUDY

## DEADWOOD BOX STUDY

VIRTUAL PUBLIC MEETING #2

January 8<sup>th</sup>, 2021 through February 8<sup>th</sup>, 2021

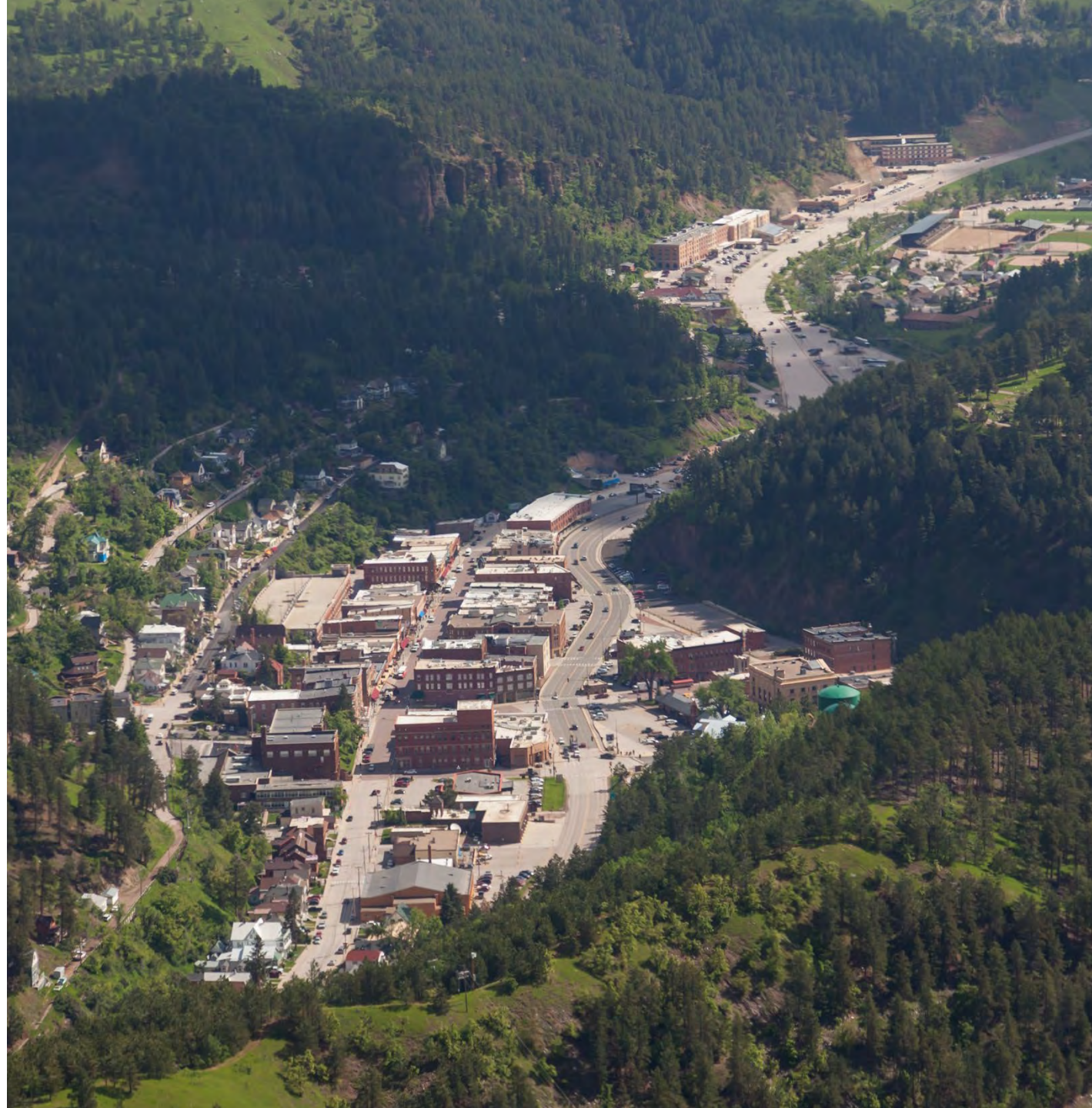




# WELCOME

The Deadwood Box is a concrete box/bridge that supports Highways 14A & 85 and carries Whitewood Creek beneath the highway.

This study will evaluate alternate options for the replacement of the structure and roadway corridor. This is an important undertaking to evaluate options for the replacement of the aging structure while accommodating vehicular and pedestrian traffic along with protecting the city's rich history.





# PUBLIC MEETING #2

The goals of this Virtual Public Meeting are to present work we have completed, describe Purpose and Need, present Options and ask for your input.

Information presented include:

1. Existing Conditions
2. Environmental Progress/Purpose and Need
3. Build Options
4. Timeline and Next Steps
5. Solicit Public Input





## PURPOSE & NEED

The purpose of this Project is to address the deteriorating structure to provide a durable structure and reduce long-term maintenance costs of the Deadwood Box.

### Needs:

- Continuing deterioration of the Deadwood Box
- Low sufficiency and condition ratings
- Maintaining structure at "fair" or better condition





Parking & Pedestrian  
Connectivity



Traffic Accommodating  
During Construction



Low Environmental  
Impact



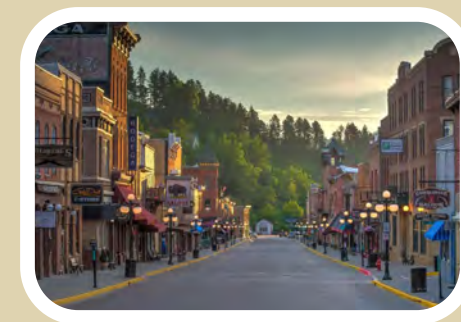
Trailhead  
Connectivity



Capacity  
Improvements



Safety Improvements



Historic Landmark  
and Aesthetics



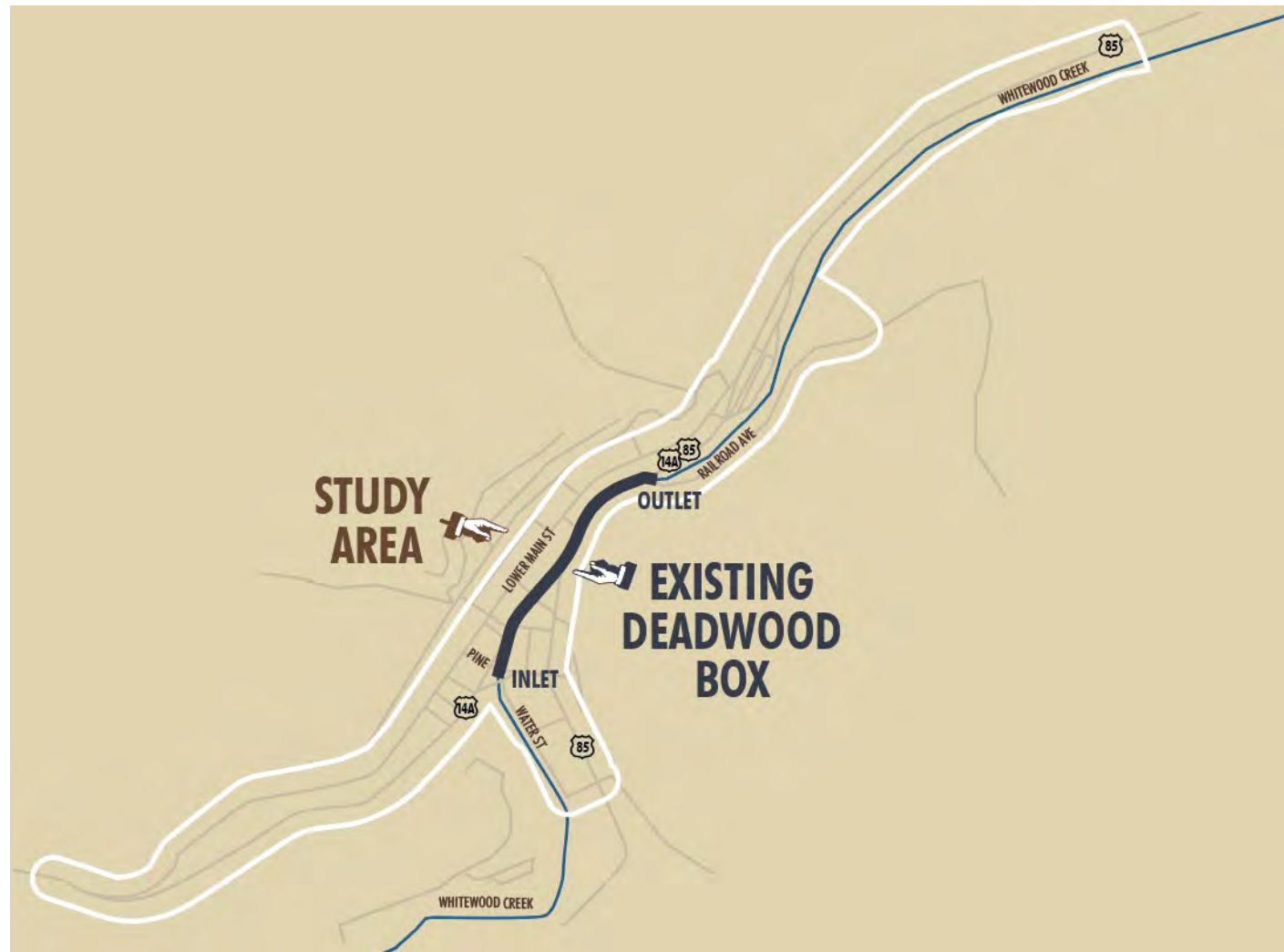
# STUDY AREA

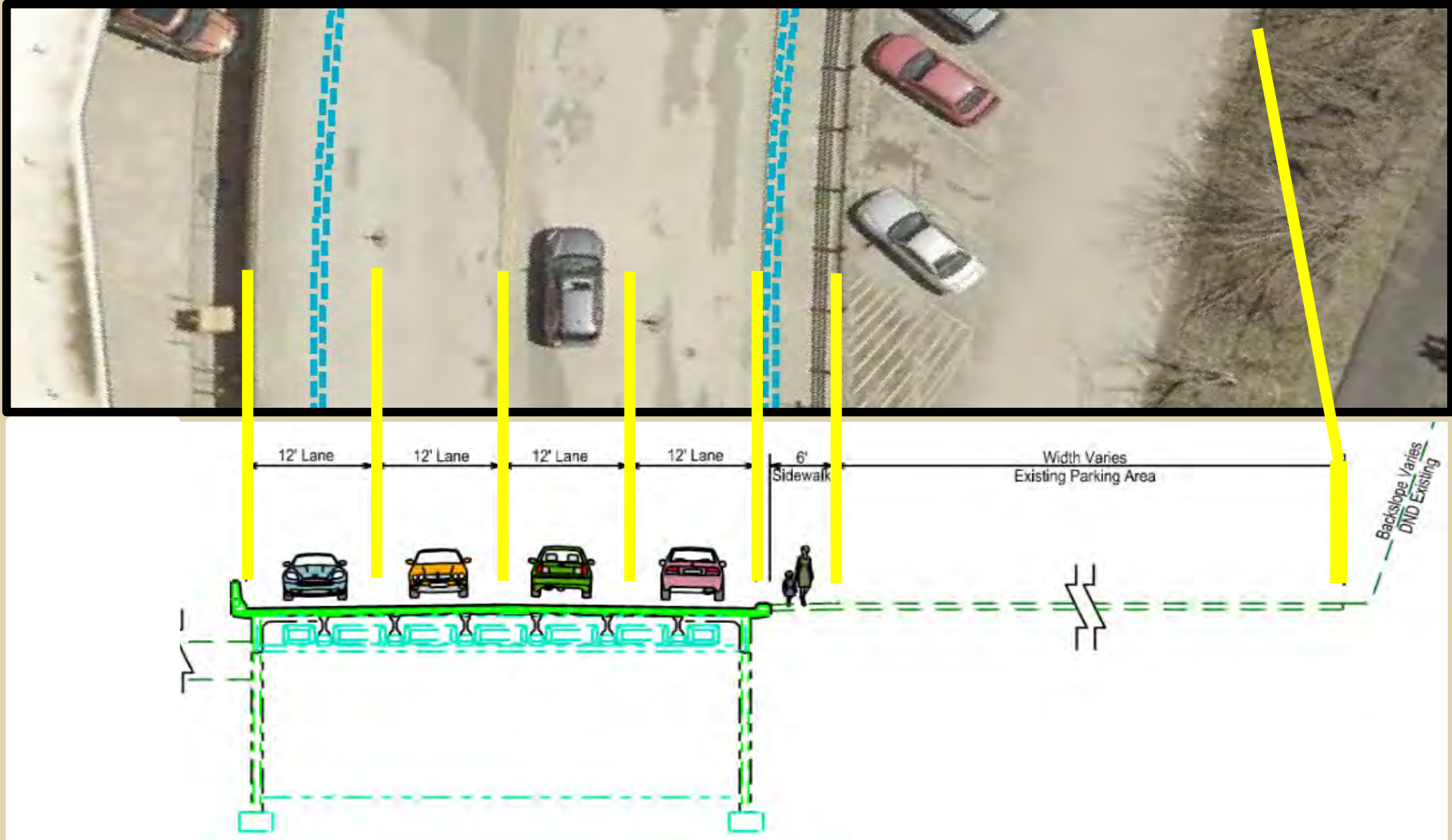
The Study Area includes US14A/US85 and adjacent streets from the US14A intersection with Upper Main Street to the northeast to the US14A and US85 intersection. The Box is located underneath US14A/US85 carrying Whitewood Creek from Pine Street to Railroad Avenue.

This map illustrates the Study Area and the Deadwood Box location.

Visit the Resources page of the project website for more detailed maps.

The Deadwood Box Study has progressed to a point where the Study Advisory Team is seeking public input on Build Options developed for the reconstruction of the Deadwood Box.







# ENVIRONMENTAL SCAN

## Key Project Needs

- Address deteriorating structure
- Reduce long-term maintenance costs

## Environmental Scan

- Study and document for project planning, reviewing the existing environment, and evaluating and screening concepts based on potential impacts
- Basis for future National Environmental Policy Act documentation

## Environmental Resource Reviews

- Approximately 20 resources reviewed in Environmental Scan
- Key resources reviewed include potential regulated material sites and cultural resources







# BUILD OPTIONS

Eleven Build Concepts and a Major Rehab Concept were initially developed. The Concepts were compared in an Evaluation Matrix ranking them on Eleven factors.

Visit the Resources page of the project website for more detail regarding the Build Concepts including those that are not discussed in this presentation.

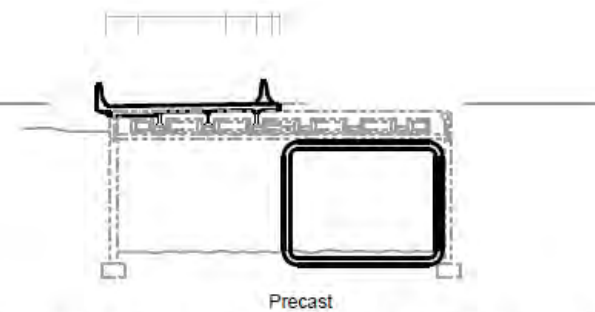
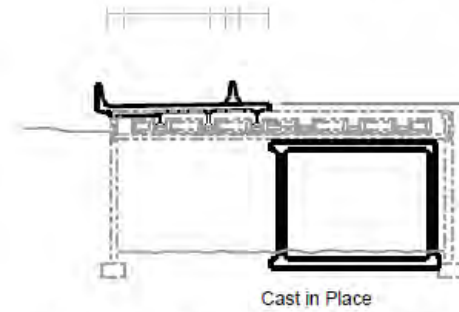
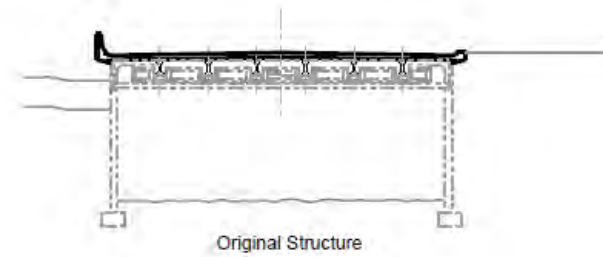
The following slides will focus on Build Options developed.

Concept No.	Description	Meets Purpose and Need	Hydraulic Impacts	Constructability	ROW Needs and Private Property Impacts	Comparative Costs	Environmental Constraints	Comparative Safety	Geologic Impacts	Multi-modal Impacts	Social Acceptability and Community Context	Utility Impacts	Total Score
<b>NB</b>	No-Build Option	No	20	5	20	20	20	0	10	0	0	10	105
<b>MR</b>	Major Rehab	No	20	5	20	19	20	0	10	0	0	10	104
<b>1a</b>	US14A as Thru Movement, Parking to East, Highway to West, Deadwood Box Rebuilt within Existing	Yes	20	20	19	13	16	3	10	7	8	10	126
<b>1b</b>	US14A as Thru Movement, Parking to East, Highway to West, Deadwood Box Partially New Alignment	Yes	20	5	19	13	12	3	9	7	8	6	102
<b>1c</b>	US14A as Thru Movement, Parking to West, Highway to East, Deadwood Box Rebuilt within Existing	Yes	20	20	17	12	14	6	7	10	6	10	122
<b>1d</b>	US14A as Thru Movement, Parking to West, Highway to East, Deadwood Box Rebuilt Partially New Alignment	Yes	20	5	17	12	10	6	6	10	6	6	98
<b>2a</b>	US85 as Thru Movement, Parking to East, Highway to West and Along Sherman St, Deadwood Box Rebuilt within Existing	Yes	20	20	18	12	12	5	10	7	10	10	124
<b>2b</b>	US85 as Thru Movement, Parking to West, Highway to East and Along Sherman St, Deadwood Box Rebuilt within Existing	Yes	20	20	15	11	12	9	5	10	6	8	116
<b>2c</b>	US85 as Thru Movement, Parking to West, Highway to East and Along Sherman St, Deadwood Box Rebuilt Partially New Alignment	Yes	20	5	15	11	8	9	4	10	6	2	90
<b>2d</b>	US85 as Thru Movement, Parking to West, Highway to East and Along Miller Street, Deadwood Box Rebuilt within Existing	Yes	20	20	0	8	8	10	1	10	0	2	79
<b>3a</b>	US14A Overpass	Yes	20	20	15	11	16	5	7	10	7	2	113
<b>4</b>	Tunnel System	Yes	0	20	8	0	0	7	9	10	0	6	60
<b>5</b>	Highway Rerouted on Local Roadway	Yes	0	5	5	6	0	0	0	4	0	0	20

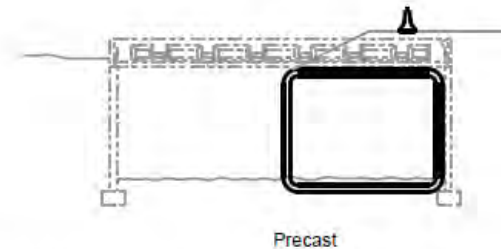
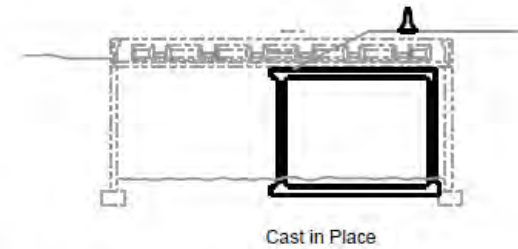


# Options: Evaluation Matrix

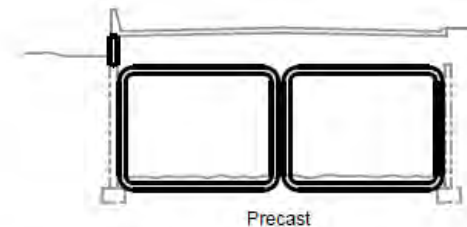
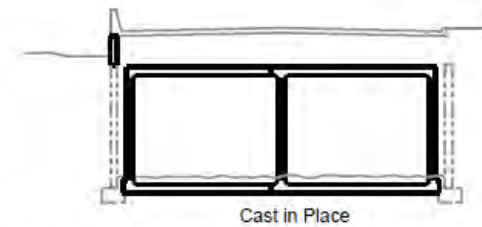
Option No.	Description	Meets Purpose and Need	Hydraulic Impacts	Constructability	ROW Needs and Private Property Impacts	Comparative Costs	Environmental Constraints	Comparative Safety	Geologic Impacts	Multi-modal Impacts	Social Acceptability and Community Context	Utility Impacts	Total Score
		Scored Out of	N/A	20	20	20	20	20	10	10	10	10	10
<b>NB</b>	No-Build Option	No	20	5	20	20	20	0	10	0	0	10	105
<b>MR</b>	Major Rehab	No	20	5	20	19	20	0	10	0	0	10	104
<b>1a</b>	US14A as Thru Movement, Parking to East, Highway to West, Deadwood Box Rebuilt within Existing	Yes	20	20	19	13	16	3	10	7	8	10	126
<b>1b</b>	US14A as Thru Movement, Parking to East, Highway to West, Deadwood Box Partially New Alignment	Yes	20	5	19	13	12	3	9	7	8	6	102
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<b>2a</b>	US85 as Thru Movement, Parking to East, Highway to West and Along Sherman St, Deadwood Box Rebuilt within Existing	Yes	20	20	18	12	12	5	10	7	10	10	124
<b>2b</b>	US85 as Thru Movement, Parking to West, Highway to East and Along Sherman St, Deadwood Box Rebuilt within Existing	Yes	20	20	15	11	12	9	5	10	6	8	116
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<b>3a</b>	US14A Overpass	Yes	20	20	15	11	16	5	7	10	7	2	113
<b>4</b>	Tunnel System	Yes	0	20	8	0	0	7	9	10	0	6	60
<b>5</b>	Highway Rerouted on Local Roadway	Yes	0	5	5	6	0	0	0	4	0	0	20



Phase 1: one half of existing superstructure removed traffic carried on remaining half of superstructure one half of new structure build beneath existing



Phase 2: Second half of existing superstructure removed traffic carried on fill placed on new box section (existing girders between abutments stay in place)

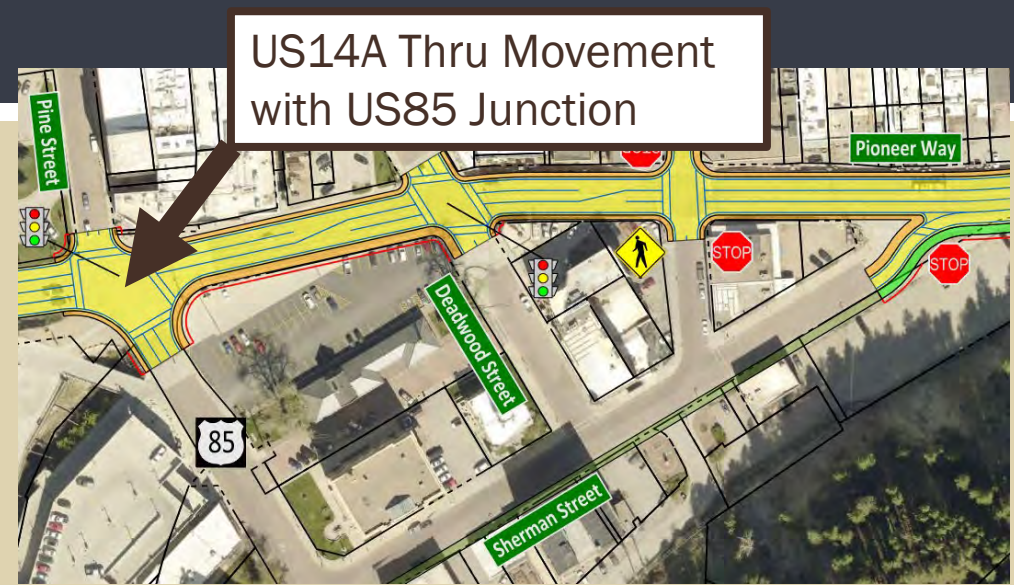


Phase 3: Existing girders removed fill placed on new box section, required retaining walls built and surfacing placed

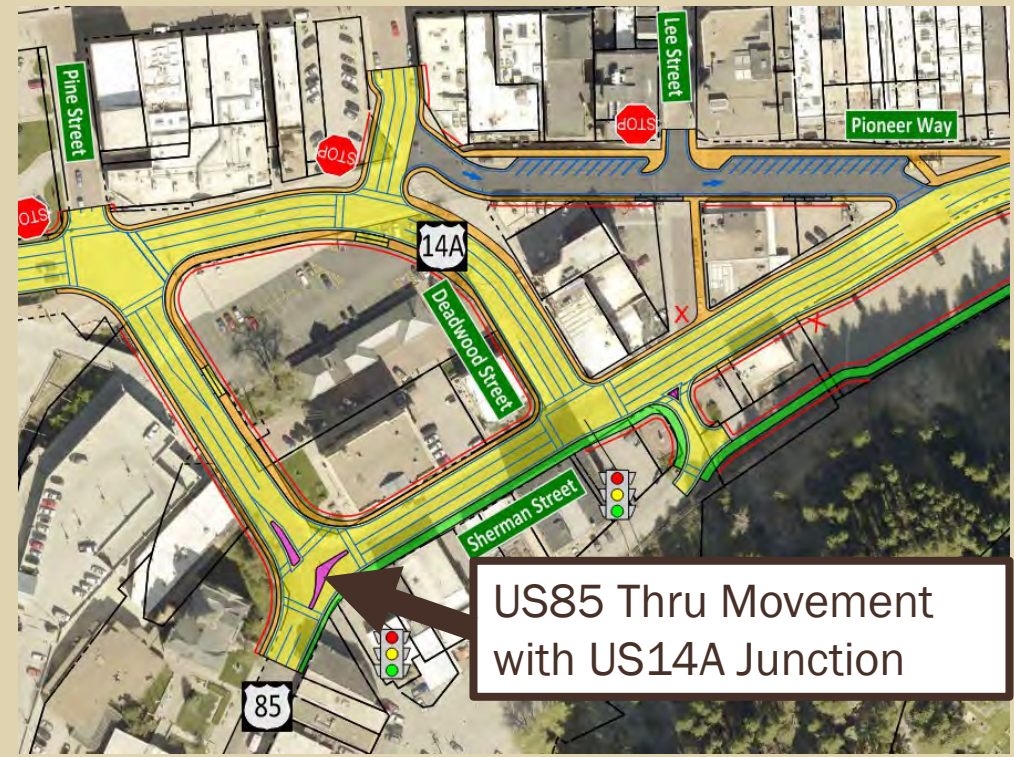


# Build Option List - Route

Option No.	Route		Deadwood Box Construction			Location of Transportation Facilities	
	Through Movement	Via	Closed Cell Box Culvert		Partial Open Channel	Parking Side	Highway Side
			Within Existing	Partial New Alignment	Within Existing		
<b>NB</b>	US14A	Pioneer Way	-	-	-	East	West
<b>MR</b>	US14A	Pioneer Way	-	-	-	East	West
<b>1a</b>	US14A	Pioneer Way	x			East	West
<b>1b</b>	US14A	Pioneer Way	x	x		East	West
<b>1c</b>	US14A	Pioneer Way	x			West	East
<b>1d</b>	US14A	Pioneer Way		x		West	East
<b>2a</b>	US85	Sherman St./ Pioneer Way	x			East	West
<b>2b</b>	US85	Sherman St./ Pioneer Way	x			West	East
<b>2c</b>	US85	Sherman St./ Pioneer Way		x		West	East
<b>2d</b>	US85	Miller St./ Pioneer Way	x			West	East
<b>3a</b>	US14A	Pioneer Way	x			West/East	East
<b>4a</b>	US14A	Tunnel	x		x	West/East	N/A
<b>5a</b>	US14A	Upper Main St./ Williams St.	x		x	East	N/A

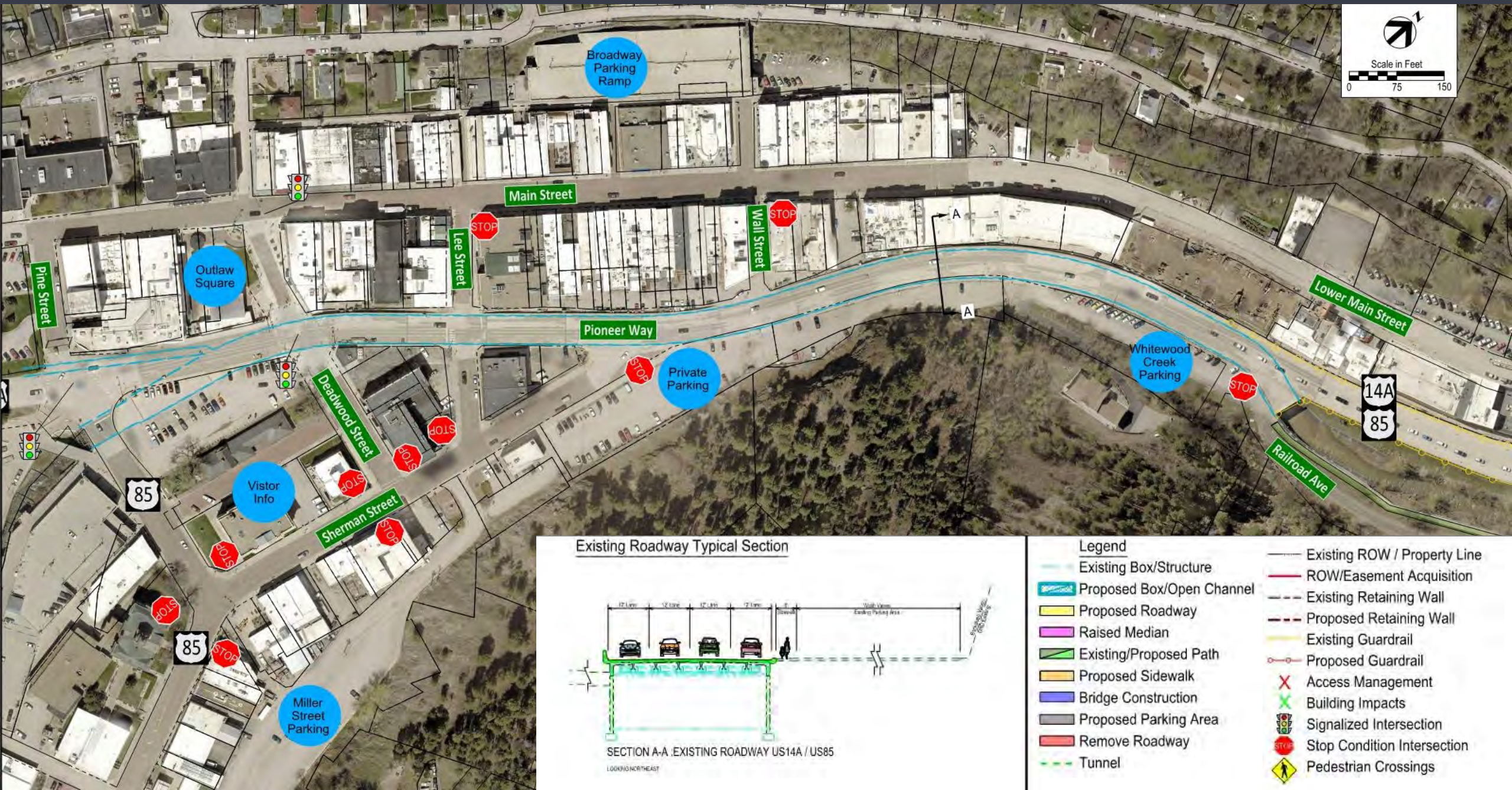


US14A Thru Movement with US85 Junction



US85 Thru Movement with US14A Junction

# Build Options – No Build



# Build Options 1a: Roadway

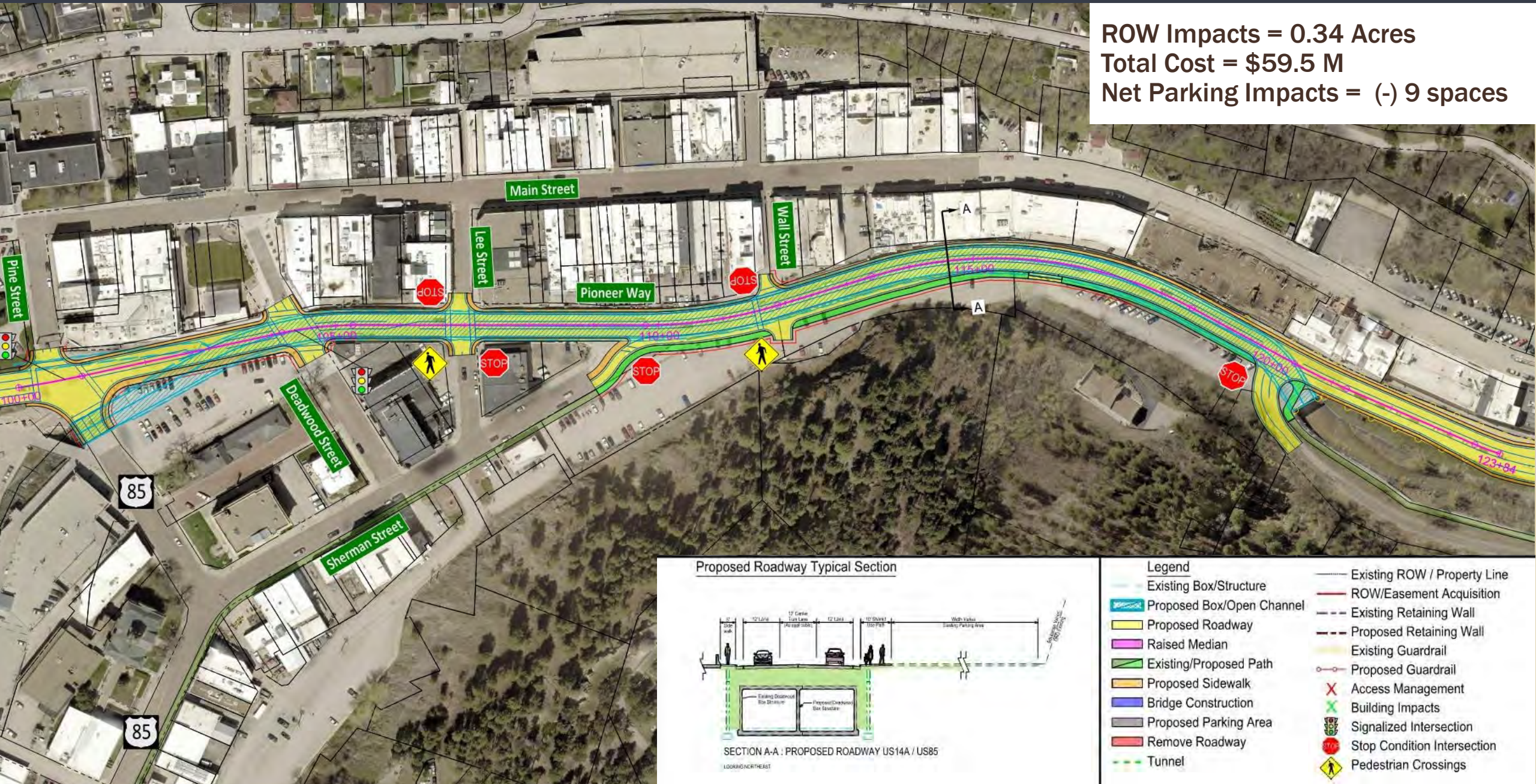


**Legend**

- Existing ROW / Property Line
- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Proposed Parking Area
- Remove Roadway
- Tunnel
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings

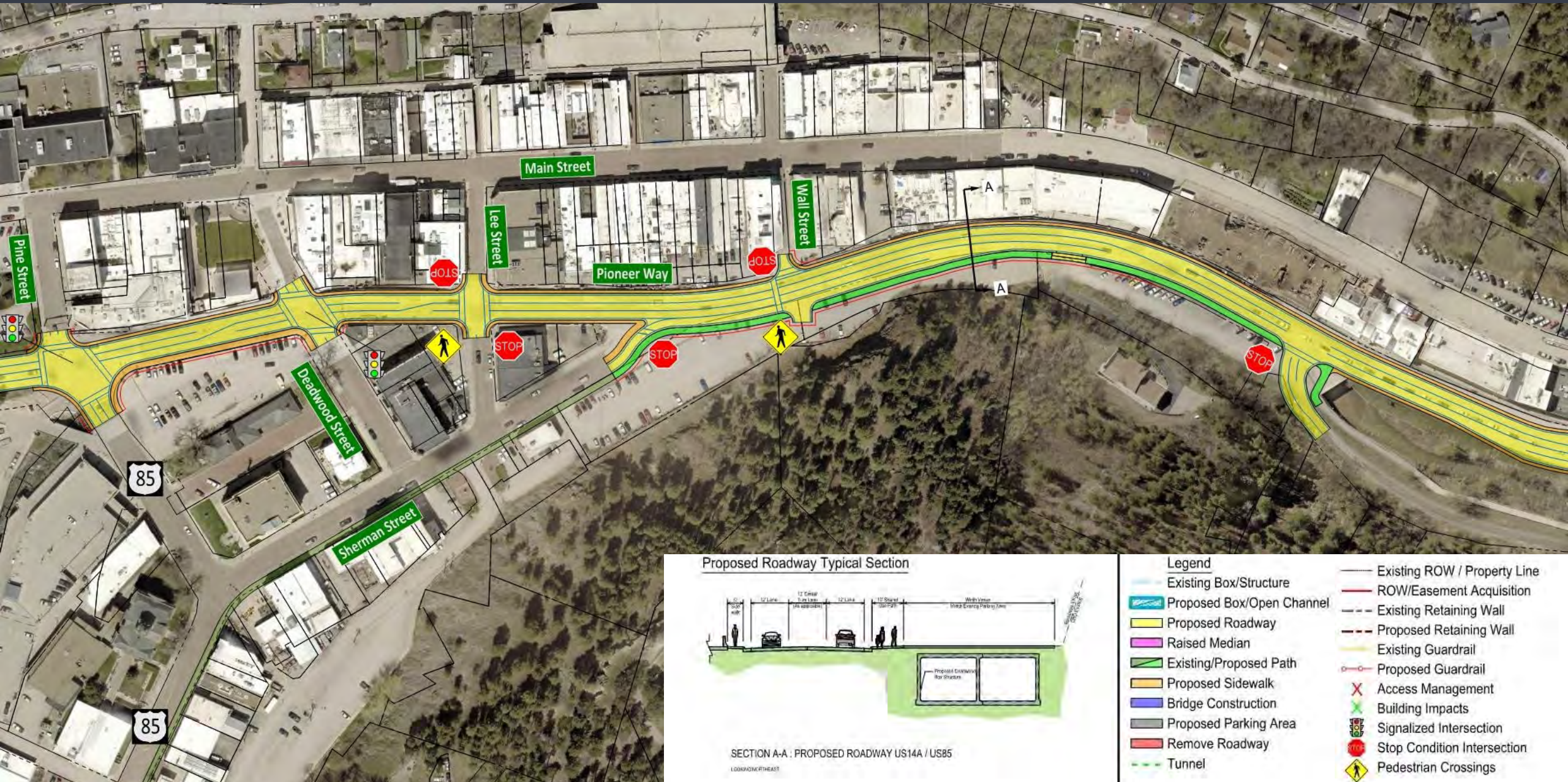
# Build Option 1a: Box Location

ROW Impacts = 0.34 Acres  
 Total Cost = \$59.5 M  
 Net Parking Impacts = (-) 9 spaces

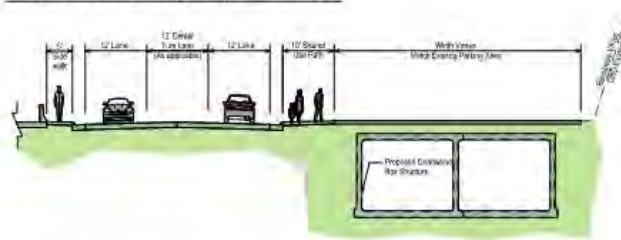


Legend	
	Existing Box/Structure
	Proposed Box/Open Channel
	Proposed Roadway
	Raised Median
	Existing/Proposed Path
	Proposed Sidewalk
	Bridge Construction
	Proposed Parking Area
	Remove Roadway
	Tunnel
	Existing ROW / Property Line
	ROW/Easement Acquisition
	Existing Retaining Wall
	Proposed Retaining Wall
	Existing Guardrail
	Proposed Guardrail
	Access Management
	Building Impacts
	Signalized Intersection
	Stop Condition Intersection
	Pedestrian Crossings

# Build Option 1b: Roadway



Proposed Roadway Typical Section



SECTION A-A : PROPOSED ROADWAY US14A / US85

LOOKING NORTHEAST

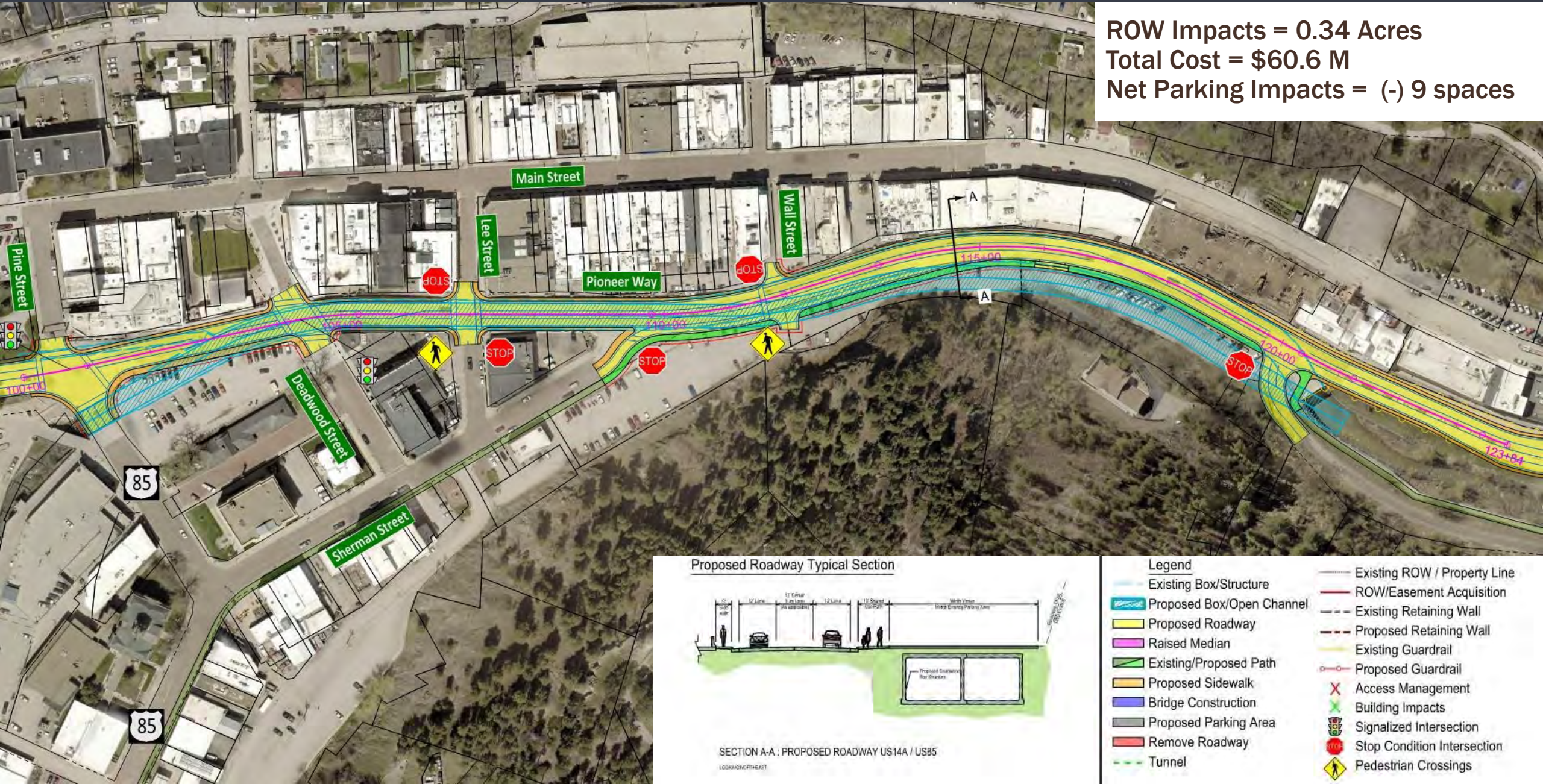
Legend

- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings



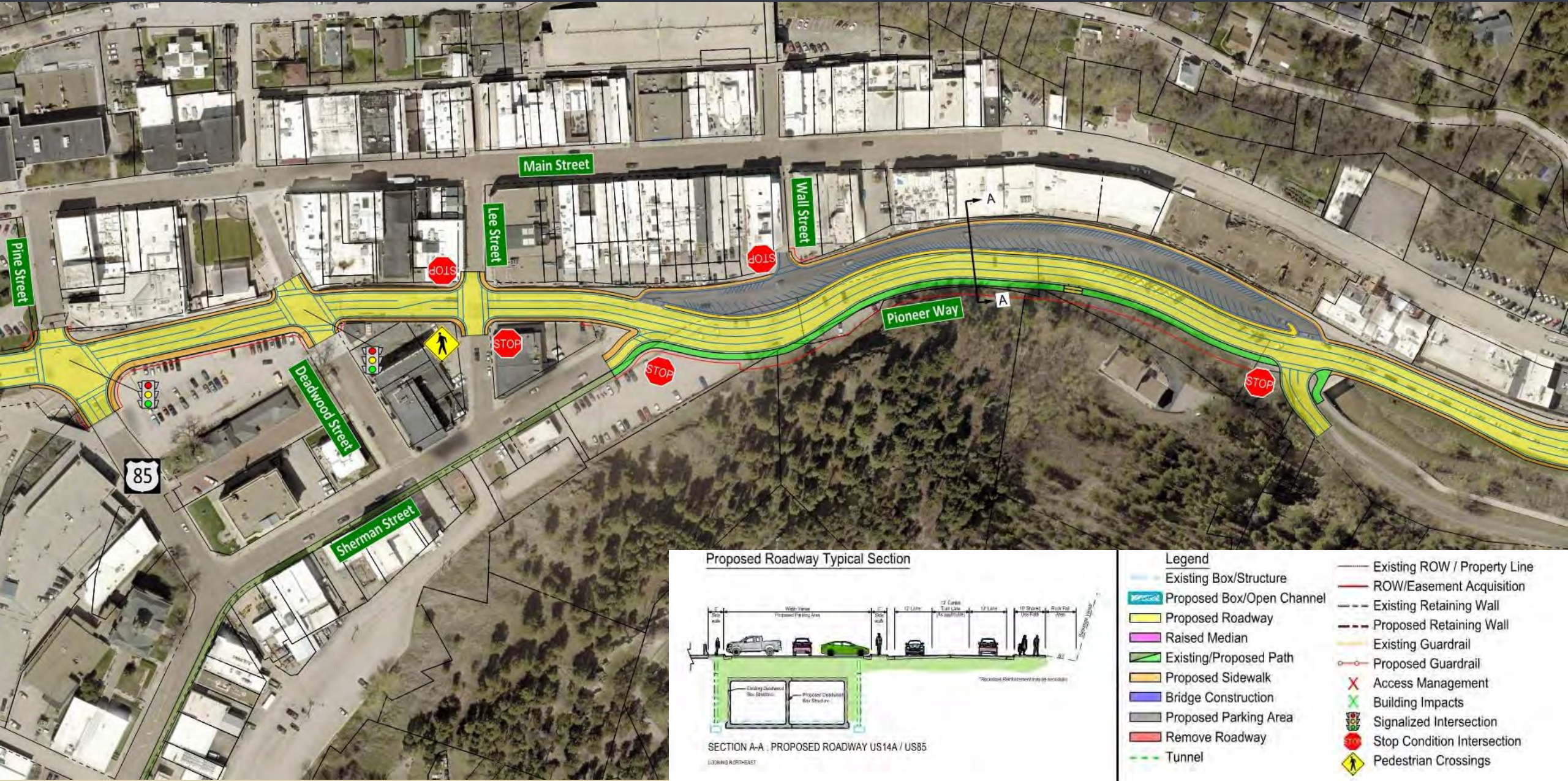
# Build Option 1b: Box Location

ROW Impacts = 0.34 Acres  
 Total Cost = \$60.6 M  
 Net Parking Impacts = (-) 9 spaces



Legend	
	Existing ROW / Property Line
	Existing Box/Structure
	Proposed Box/Open Channel
	Proposed Roadway
	Raised Median
	Existing/Proposed Path
	Proposed Sidewalk
	Proposed Parking Area
	Remove Roadway
	Tunnel
	ROW/Easement Acquisition
	Existing Retaining Wall
	Proposed Retaining Wall
	Existing Guardrail
	Proposed Guardrail
	Access Management
	Building Impacts
	Signalized Intersection
	Stop Condition Intersection
	Pedestrian Crossings

# Build Option 1c: Roadway

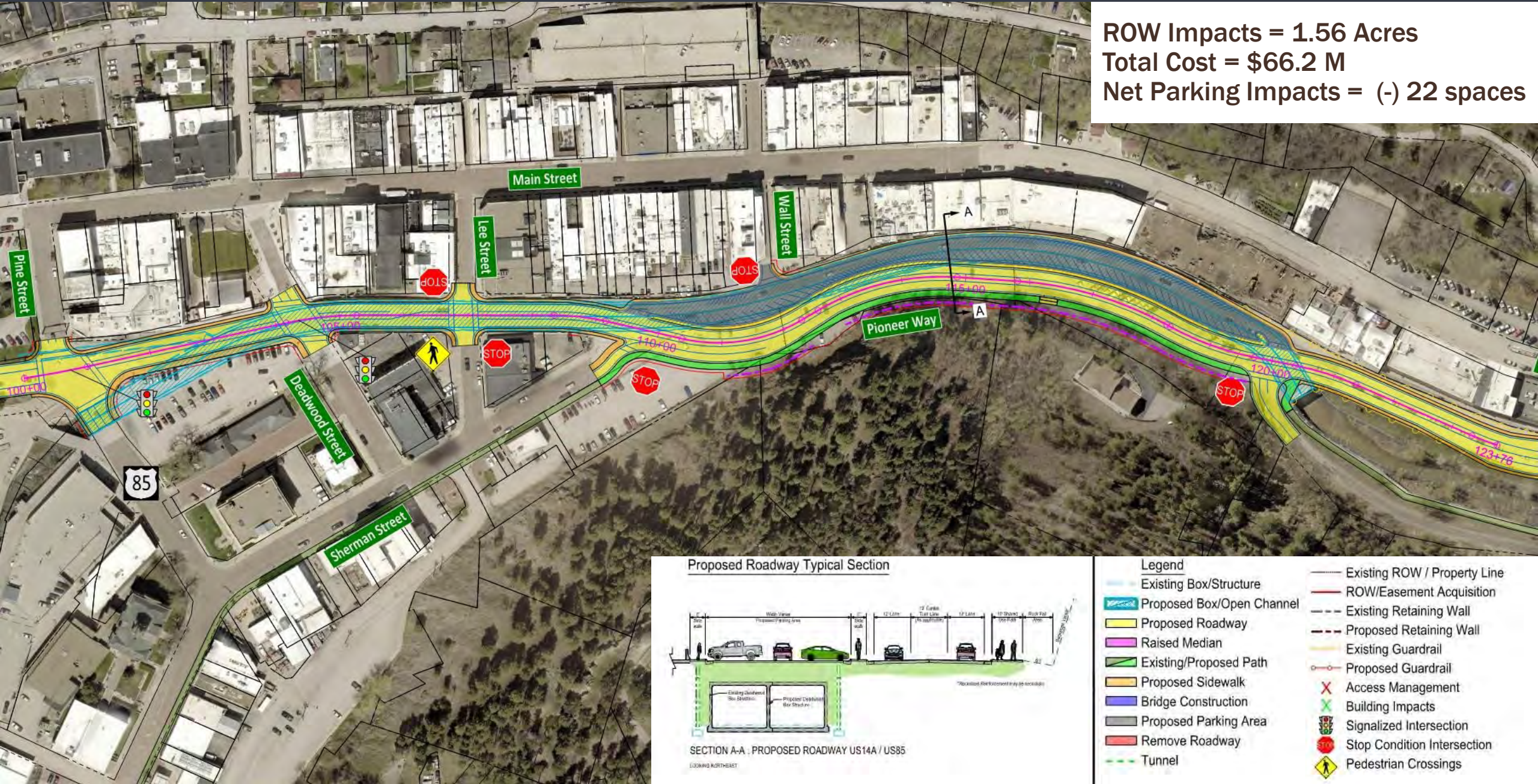


**Legend**

Existing Box/Structure	Existing ROW / Property Line
Proposed Box/Open Channel	ROW/Easement Acquisition
Proposed Roadway	Existing Retaining Wall
Raised Median	Proposed Retaining Wall
Existing/Proposed Path	Existing Guardrail
Proposed Sidewalk	Proposed Guardrail
Bridge Construction	Access Management
Proposed Parking Area	Building Impacts
Remove Roadway	Signalized Intersection
Tunnel	Stop Condition Intersection
	Pedestrian Crossings

# Build Option 1c: Box Location

ROW Impacts = 1.56 Acres  
 Total Cost = \$66.2 M  
 Net Parking Impacts = (-) 22 spaces

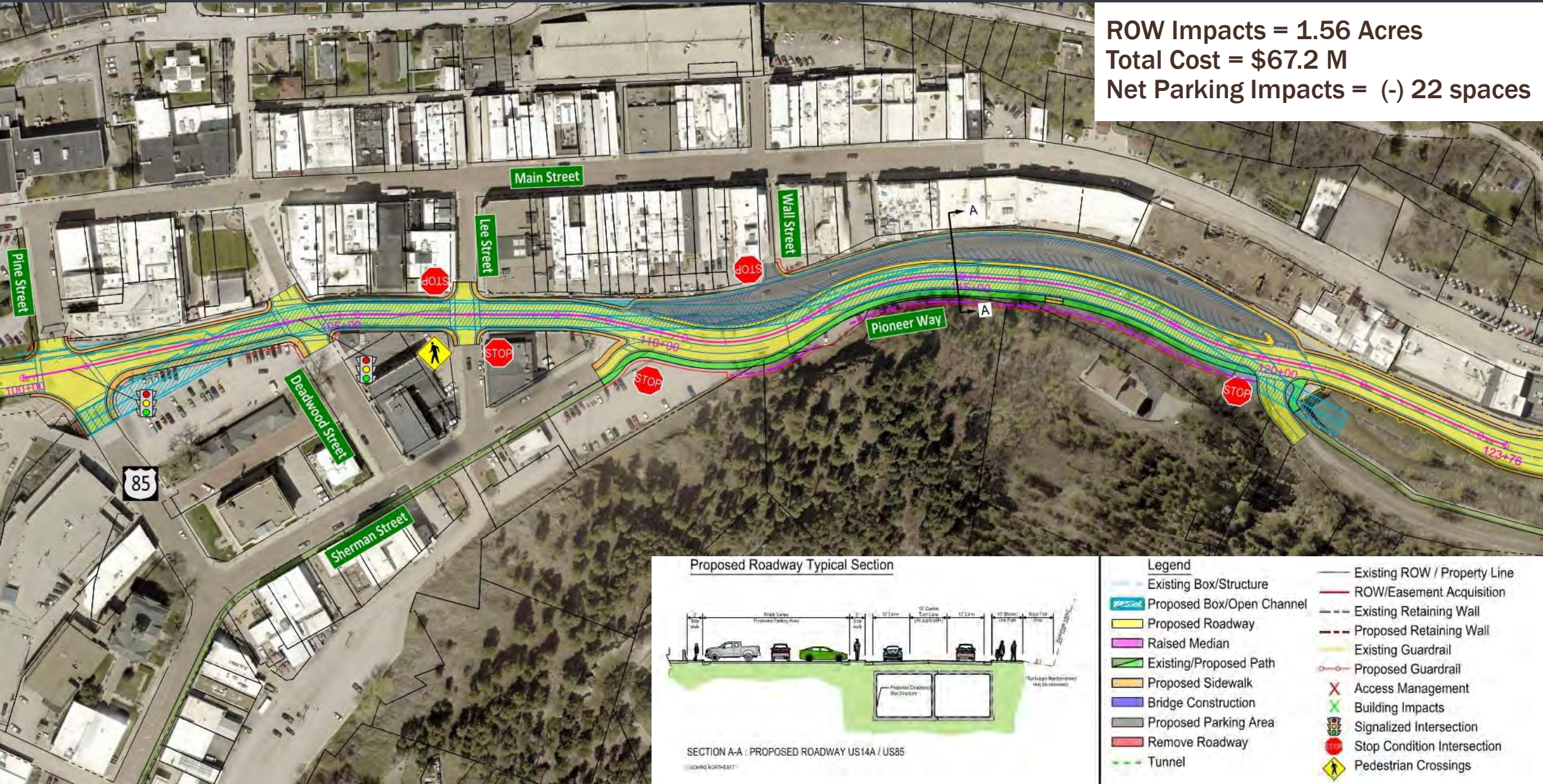


**Legend**

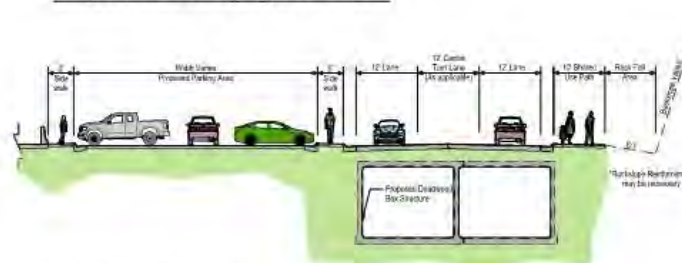
Existing Box/Structure	Existing ROW / Property Line
Proposed Box/Open Channel	ROW/Easement Acquisition
Proposed Roadway	Existing Retaining Wall
Raised Median	Proposed Retaining Wall
Existing/Proposed Path	Existing Guardrail
Proposed Sidewalk	Proposed Guardrail
Bridge Construction	Access Management
Proposed Parking Area	Building Impacts
Remove Roadway	Signalized Intersection
Tunnel	Stop Condition Intersection
	Pedestrian Crossings

# Build Option 1d: Box Location

ROW Impacts = 1.56 Acres  
 Total Cost = \$67.2 M  
 Net Parking Impacts = (-) 22 spaces



Proposed Roadway Typical Section



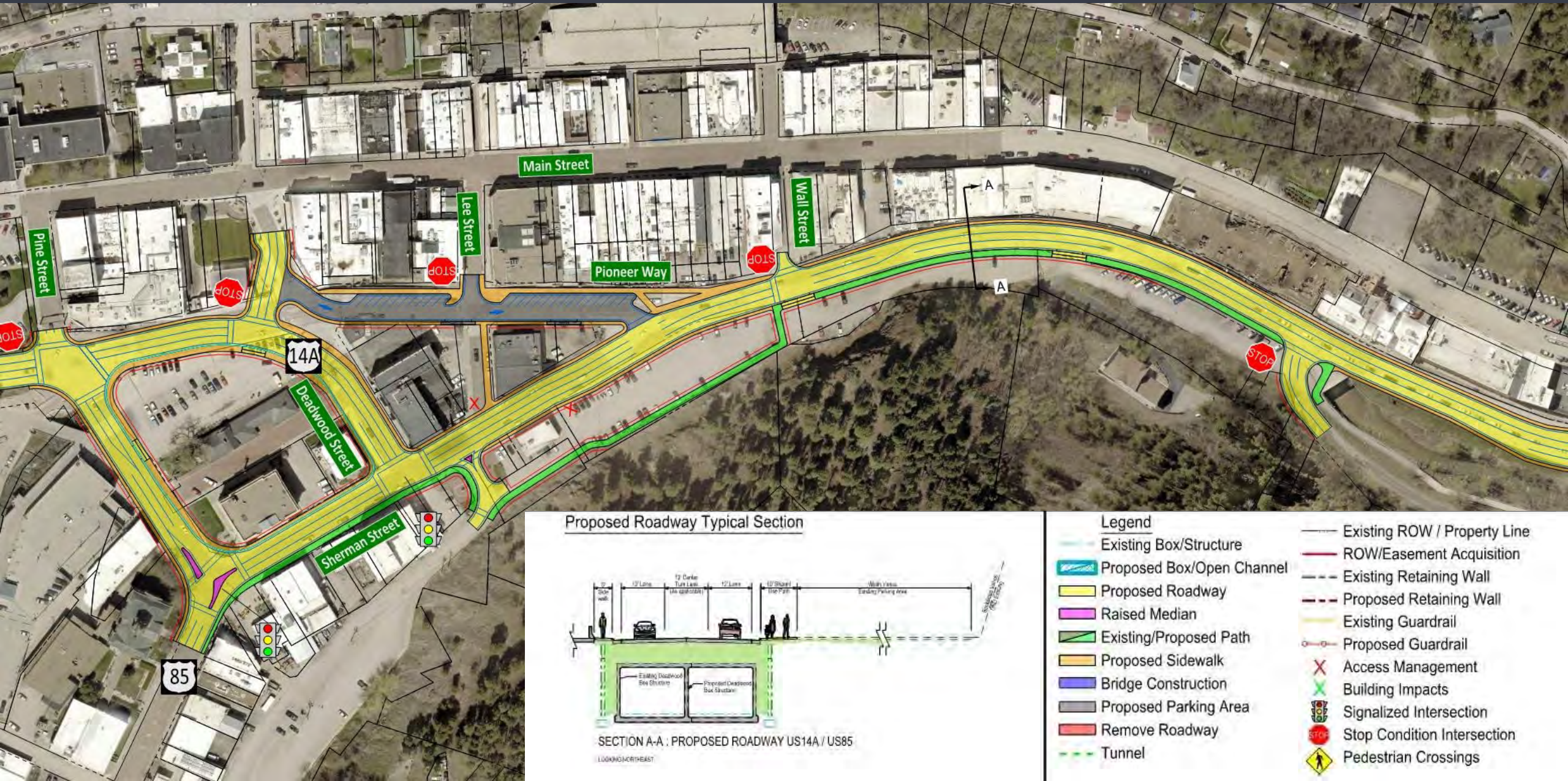
SECTION A-A : PROPOSED ROADWAY US14A / US85

(LOOKING NORTHEAST)

Legend

- |                           |                              |
|---------------------------|------------------------------|
| Existing Box/Structure    | Existing ROW / Property Line |
| Proposed Box/Open Channel | ROW/Easement Acquisition     |
| Proposed Roadway          | Existing Retaining Wall      |
| Raised Median             | Proposed Retaining Wall      |
| Existing/Proposed Path    | Existing Guardrail           |
| Proposed Sidewalk         | Proposed Guardrail           |
| Bridge Construction       | Access Management            |
| Proposed Parking Area     | Building Impacts             |
| Remove Roadway            | Signalized Intersection      |
| Tunnel                    | Stop Condition Intersection  |
|                           | Pedestrian Crossings         |

# Build Option 2a: Roadway



Proposed Roadway Typical Section



SECTION A-A : PROPOSED ROADWAY US14A / US85

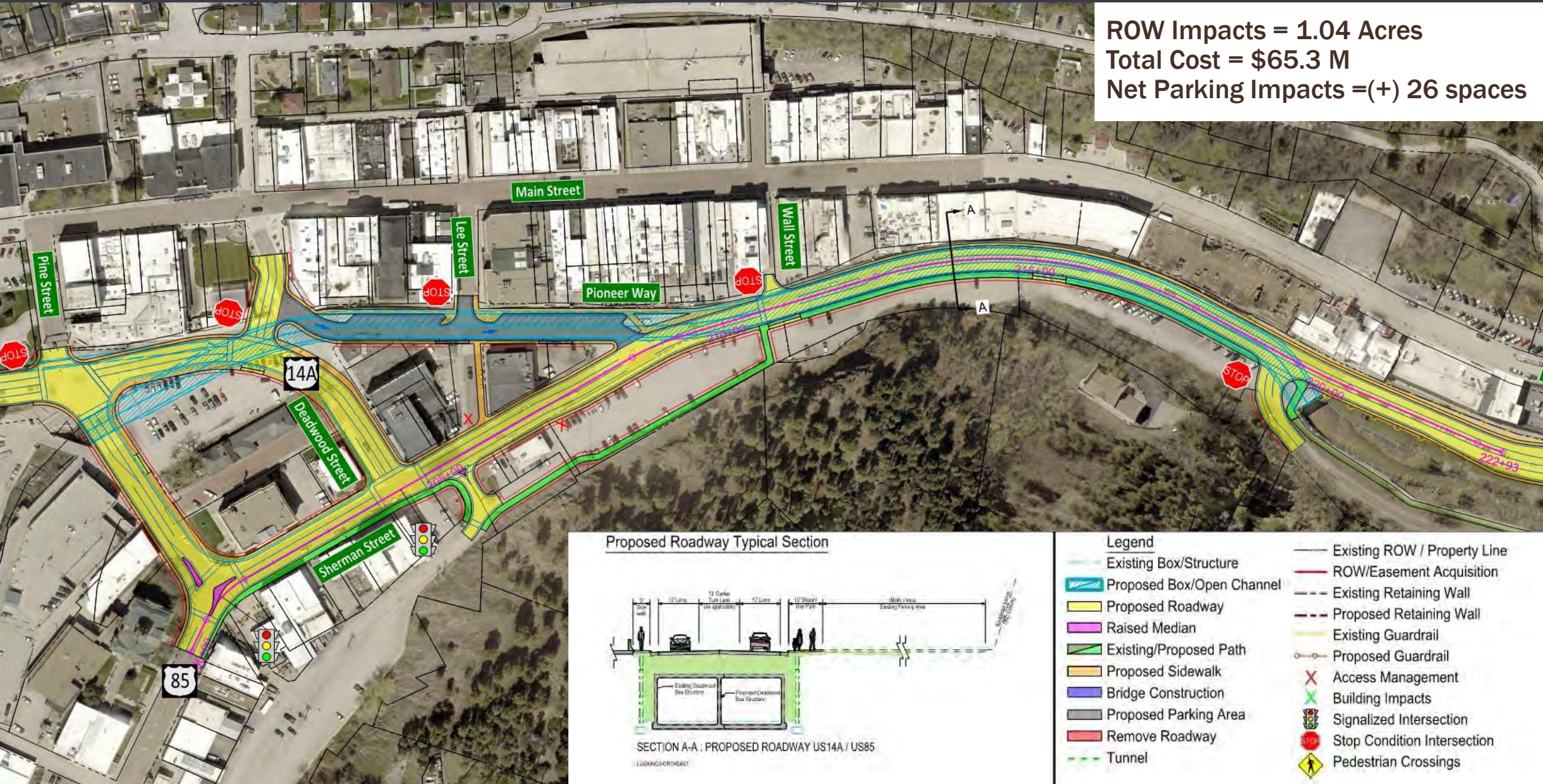
LOOKING NORTHEAST

Legend

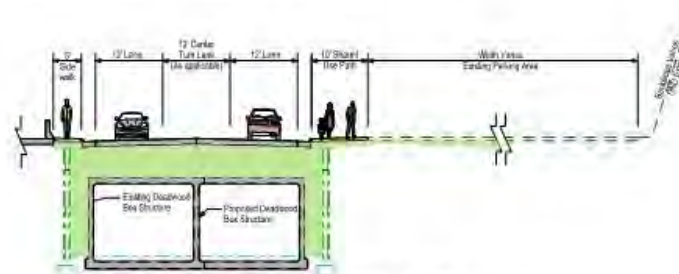
- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings

# Build Option 2a: Box Location

ROW Impacts = 1.04 Acres  
 Total Cost = \$65.3 M  
 Net Parking Impacts = (+) 26 spaces



Proposed Roadway Typical Section



SECTION A-A : PROPOSED ROADWAY US14A / US85  
 LOOKING NORTHEAST

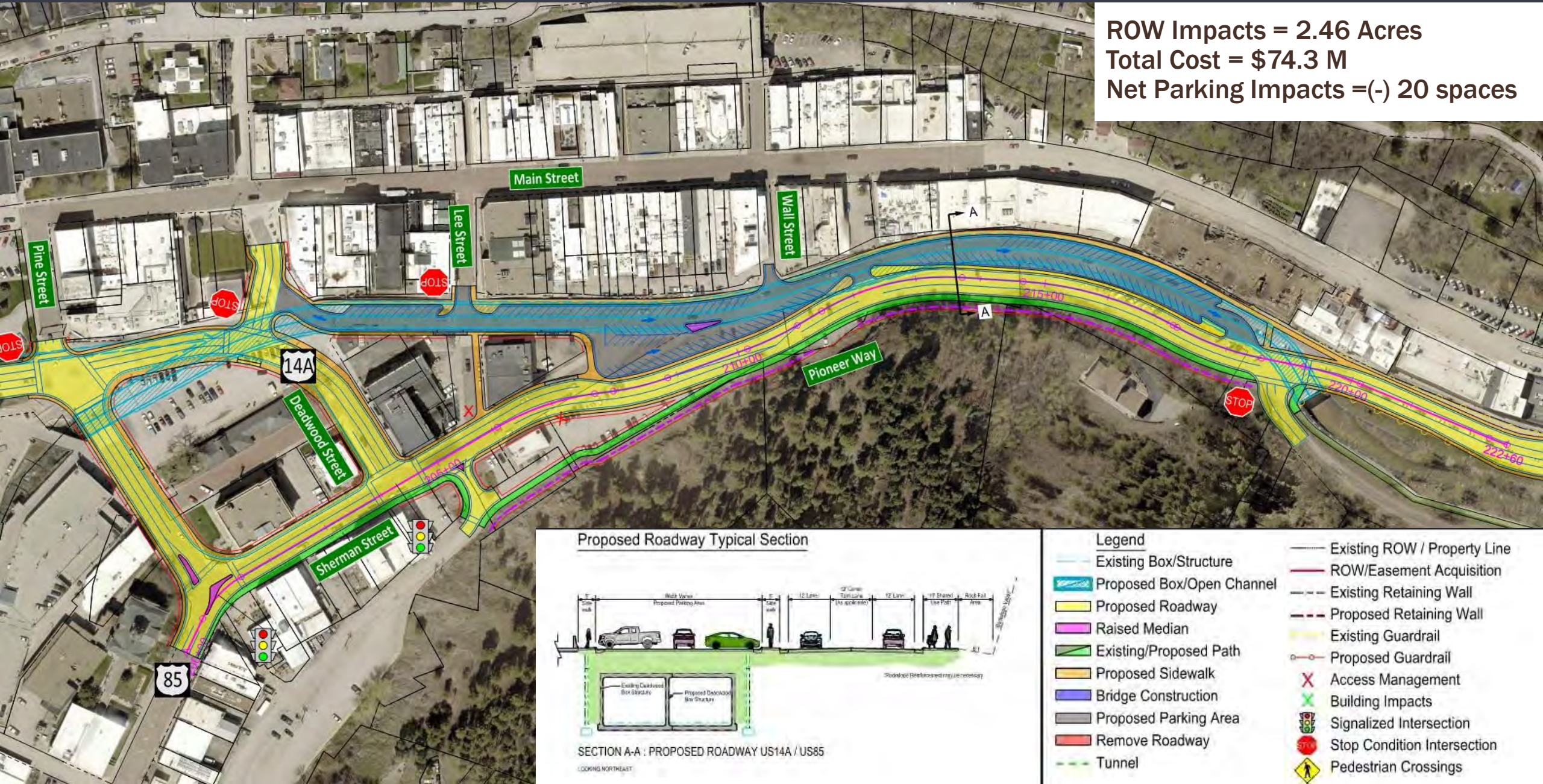
- |                           |                                |
|---------------------------|--------------------------------|
| <b>Legend</b>             | — Existing ROW / Property Line |
| Existing Box/Structure    | — ROW/Easement Acquisition     |
| Proposed Box/Open Channel | - - - Existing Retaining Wall  |
| Proposed Roadway          | - - - Proposed Retaining Wall  |
| Raised Median             | Existing Guardrail             |
| Existing/Proposed Path    | Proposed Guardrail             |
| Proposed Sidewalk         | X Access Management            |
| Proposed Parking Area     | X Building Impacts             |
| Remove Roadway            | Signalized Intersection        |
| Tunnel                    | Stop Condition Intersection    |
|                           | Pedestrian Crossings           |

# Build Option 2b: Roadway



# Build Option 2b: Box Location

ROW Impacts = 2.46 Acres  
 Total Cost = \$74.3 M  
 Net Parking Impacts = (-) 20 spaces

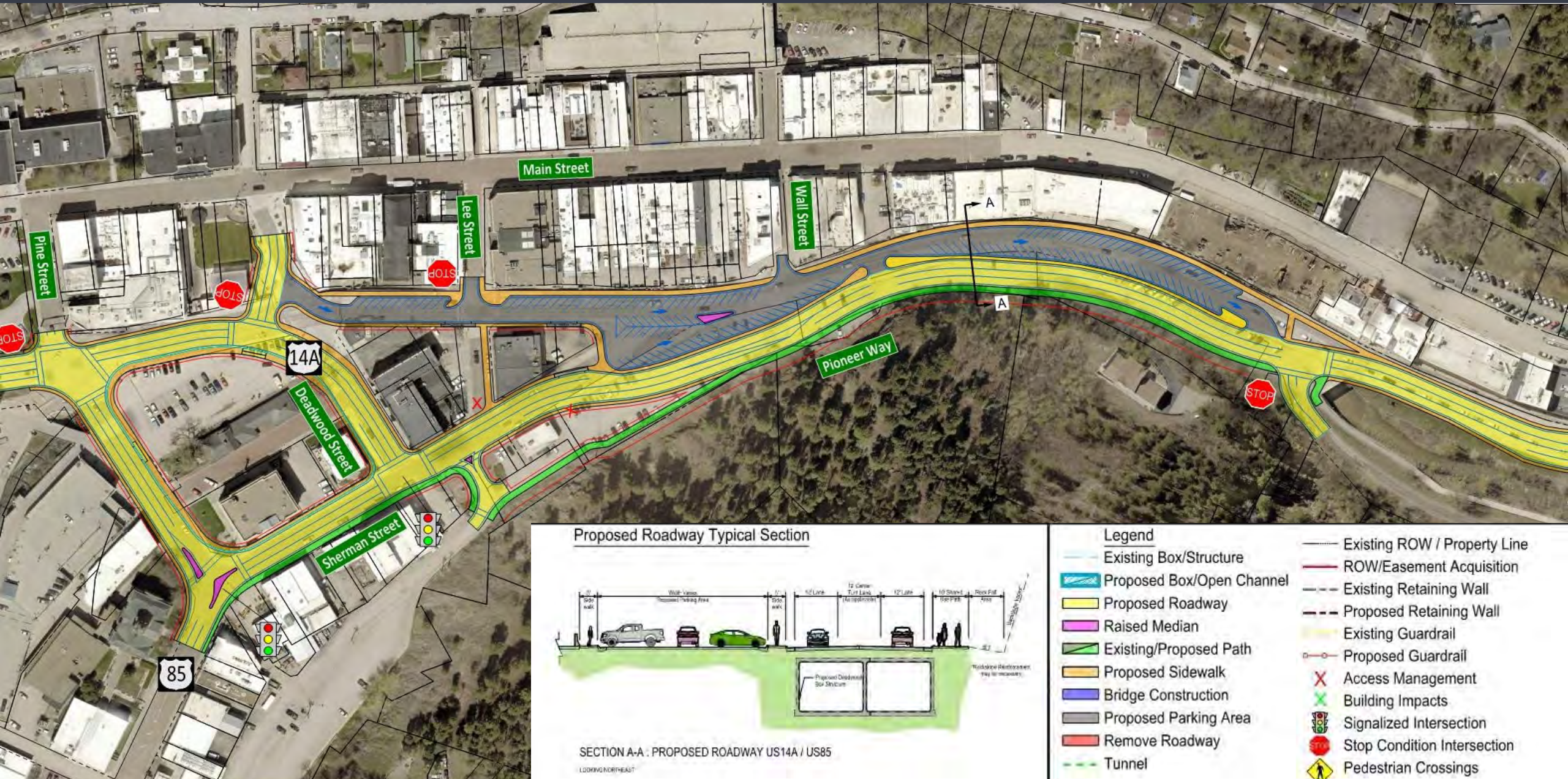


**Legend**

- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings



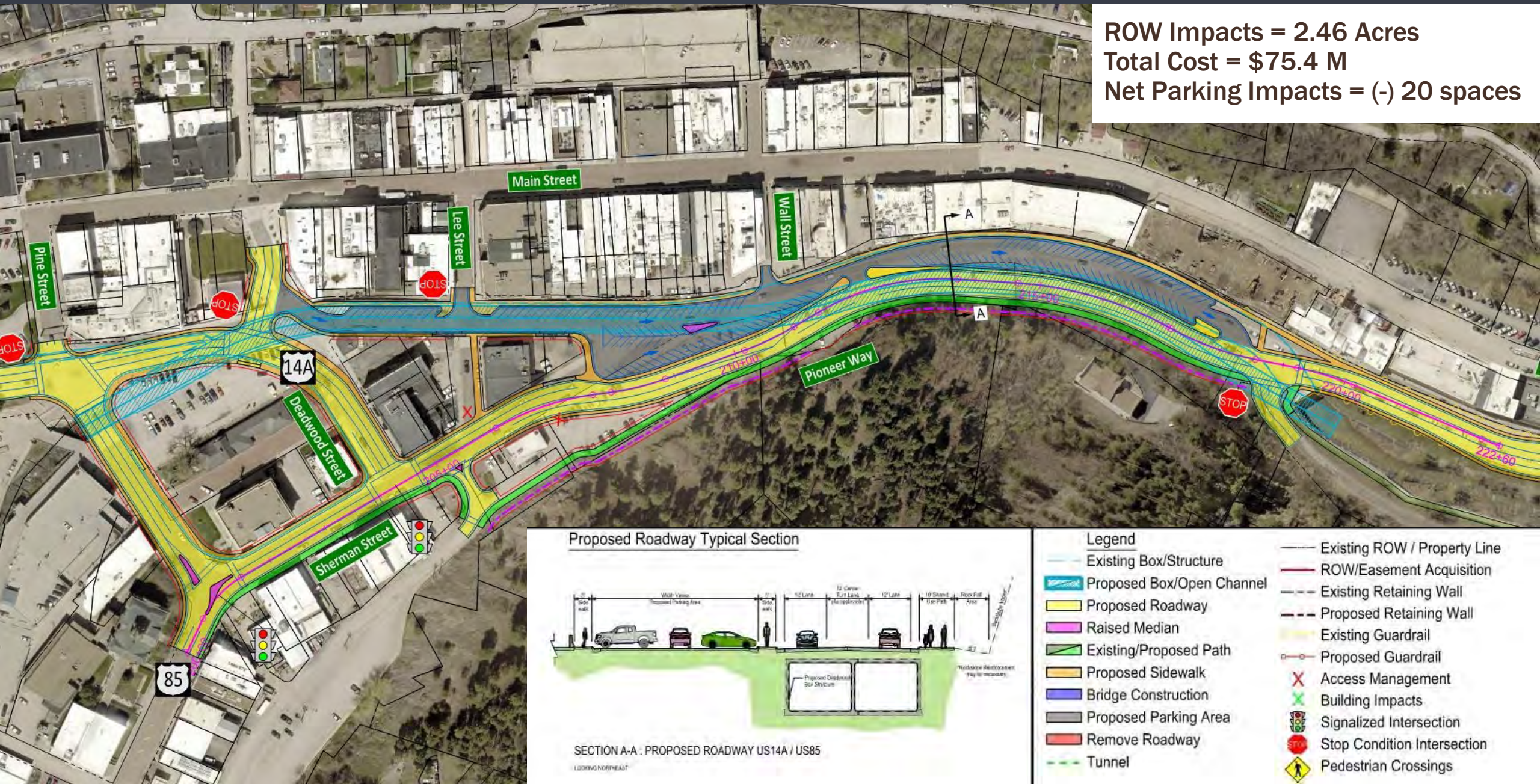
# Build Option 2c: Roadway



Legend	
	Existing Box/Structure
	Proposed Box/Open Channel
	Proposed Roadway
	Raised Median
	Existing/Proposed Path
	Proposed Sidewalk
	Proposed Parking Area
	Remove Roadway
	Tunnel
	Existing ROW / Property Line
	ROW/Easement Acquisition
	Existing Retaining Wall
	Proposed Retaining Wall
	Existing Guardrail
	Proposed Guardrail
	Access Management
	Building Impacts
	Signalized Intersection
	Stop Condition Intersection
	Pedestrian Crossings

# Build Option 2c: Box Location

ROW Impacts = 2.46 Acres  
 Total Cost = \$75.4 M  
 Net Parking Impacts = (-) 20 spaces

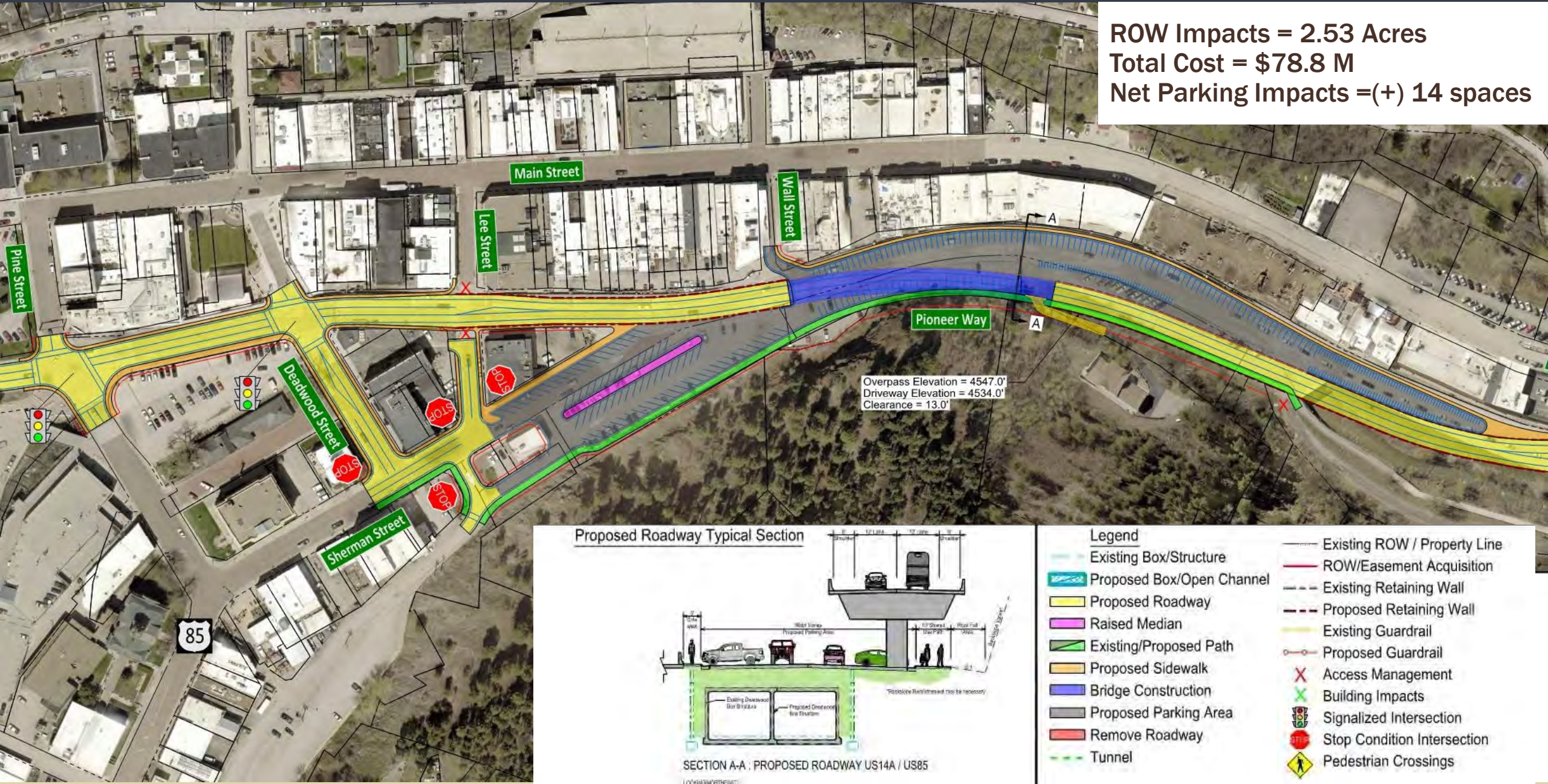


**Legend**

- Existing ROW / Property Line
- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings

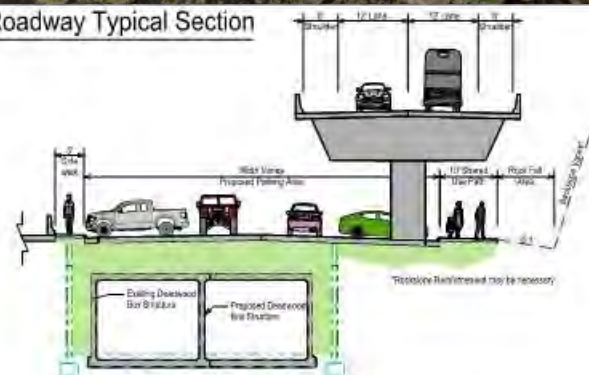
# Build Option 3a: Roadway

ROW Impacts = 2.53 Acres  
 Total Cost = \$78.8 M  
 Net Parking Impacts = (+) 14 spaces



Overpass Elevation = 4547.0'  
 Driveway Elevation = 4534.0'  
 Clearance = 13.0'

Proposed Roadway Typical Section

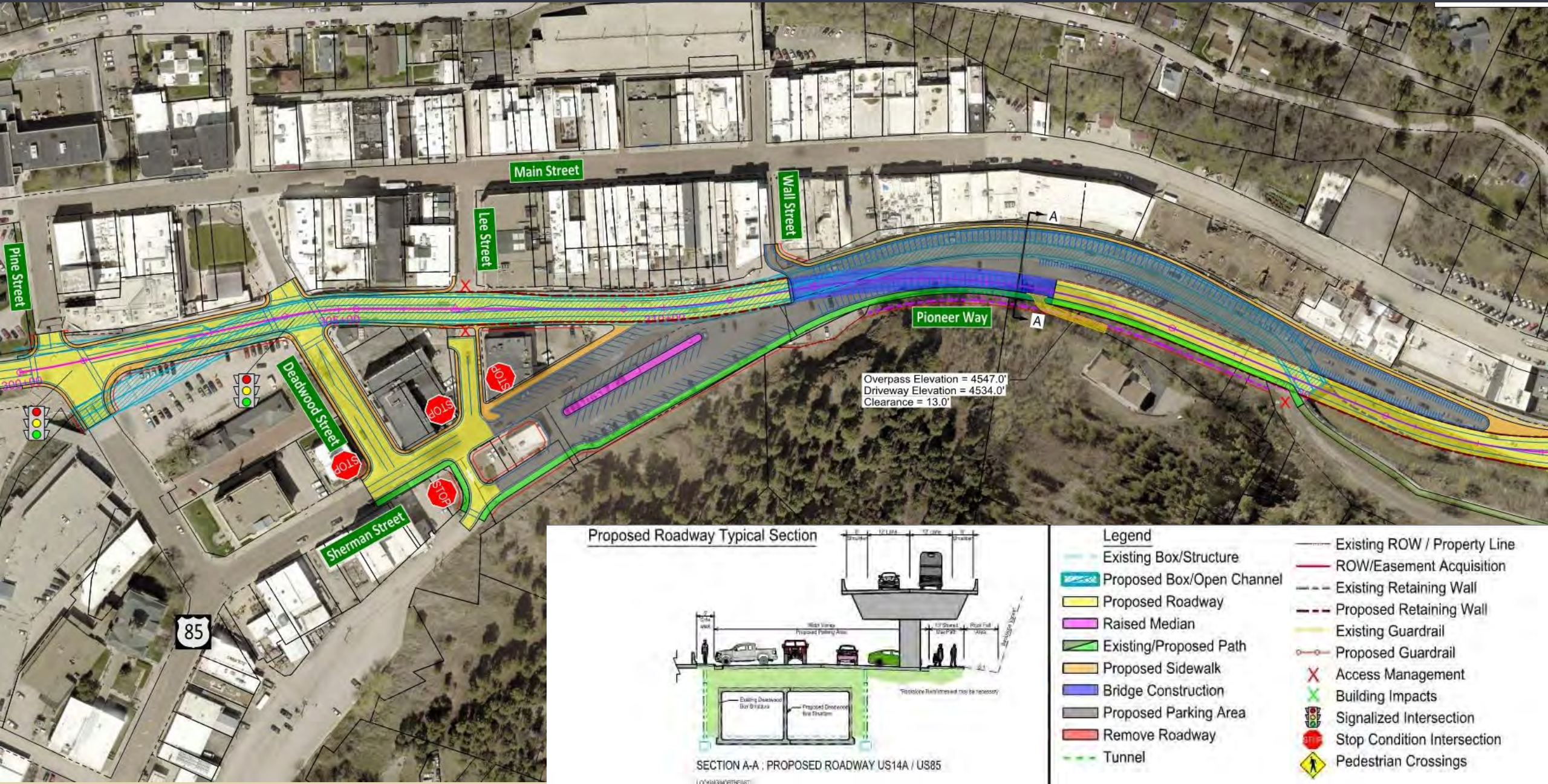


SECTION A-A: PROPOSED ROADWAY US14A / US85

**Legend**

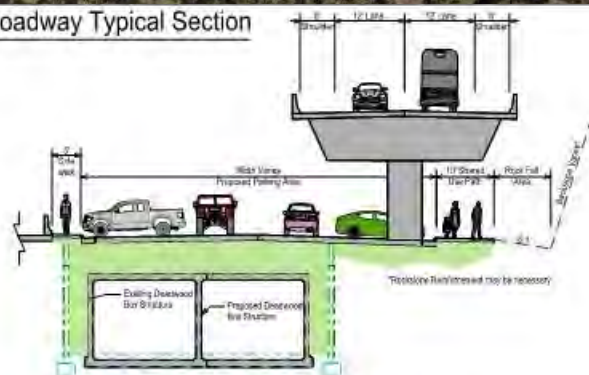
- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings

# Build Option 3a: Box Location



Overpass Elevation = 4547.0'  
 Driveway Elevation = 4534.0'  
 Clearance = 13.0'

Proposed Roadway Typical Section



SECTION A-A : PROPOSED ROADWAY US14A / US85

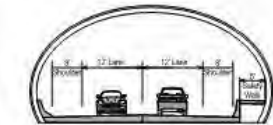
Legend

- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings

# Build Option 4a: Roadway



Proposed Roadway Typical Section



SECTION A-A : PROPOSED ROADWAY US14A / US85

LOOKING NORTH



SECTION B-B : PROPOSED DEADWOOD BOX

LOOKING NORTHWEST

**Legend**

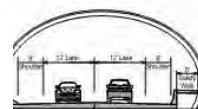
- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing ROW / Property Line
- ROW/Easement Acquisition
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Pedestrian Crossings

# Build Option 4a: Box Location

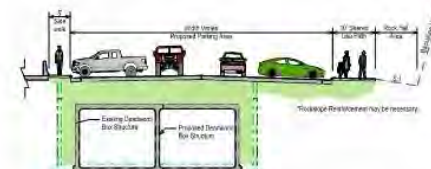
ROW Impacts = 5.62 Acres  
 70 Parcels  
 3 Commercial Buildings  
 4 Residential Buildings  
 Total Cost = \$153.8 M  
 Net Parking Impacts = (+) 167 spaces



Proposed Roadway Typical Section



SECTION A.A - PROPOSED ROADWAY US14A / US85



SECTION B.B - PROPOSED DEADWOOD BOX

Legend

- Existing ROW / Property Line
- Existing Box/Structure
- Proposed Box/Open Channel
- Proposed Roadway
- Raised Median
- Existing/Proposed Path
- Proposed Sidewalk
- Bridge Construction
- Proposed Parking Area
- Remove Roadway
- Tunnel
- Existing Retaining Wall
- Proposed Retaining Wall
- Existing Guardrail
- Proposed Guardrail
- Access Management
- Building Impacts
- Signalized Intersection
- Stop Condition Intersection
- Relocated Intersection





# TIMELINE

The study is on schedule to wrap-up in February of 2022.

## Next Steps:

- Public Input – Through February 8<sup>th</sup>
- Concept Refinement & Analysis
- Draft of Environmental Scan Report
- Development Environmental Report

Construction is tentatively slated to begin in 2026.



2020

Concept  
Development  
& Analysis

2021

2022

JUNE

JULY

AUG

SEPT

OCT

NOV

DEC

JAN

FEB

MAR

APRIL

MAY

JUNE

JULY

AUG

SEPT

OCT

NOV

DEC

JAN

FEB

Public Meeting #1

Traffic Data Collection

Draft of Environmental Scan Report

Public Meeting #2

Public Meeting #3

Environmental Document

Public Meeting #4 (if needed)

Project Complete



# GET INVOLVED

We ask that you review the Purpose and Need as well as Build Options and provide your comments. It is important to understand what concerns you have.

Opportunities to get involved include the virtual public meeting, submitting comments on the contact page of the website and email. In-person meetings will begin once physical distancing recommendations are relaxed.

Visit Public Meeting #2 on the Resources page of the project website to review in more detail and provide your comments or concerns regarding each Build Option.







# CONTACT

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