

# Cost Analysis and Implementation

## TABLE of CONTENTS

Section One: Cost Analysis.....	4.1
Section Two: Implementation .....	4.14
Section Three: Priorities.....	4.16



## SECTION ONE: Cost Analysis

To understand the cost implications of the improvements proposed by this Corridor Plan, estimates on a cost per square foot (sf) and per acre (ac) basis have been prepared. At the planning budget level, these estimates can be applied to the landscape design segments to produce an overall maximum cost for the right-of-way sections through undeveloped areas, communities, and individual interchange improvements. These estimates will inform NDOT in the decision-making process, and help influence budget allocations for the landscape and aesthetics highway improvements.

### APPLICATION OF DESIGN GUIDELINES

The Design Guidelines included in this report describe the elements that compose a typical right-of-way section and interchange along elevated highways and bypasses. They also describe a base level of landscape and aesthetic quality that is used to predict costs. The intent of this section is to develop a definition of what is considered a “standard” treatment. Upon adoption of the Corridor Plan, NDOT should initiate internal reviews to determine implementation strategies. These reviews will include cost evaluation, priorities, scheduling, and visual preference evaluations to test each standard proposed by this section.

Funding for the landscape and aesthetics portion of a project should not be used to cover the ordinary construction costs. The landscape and aesthetics budget is available for softscape and

hardscape treatments that exceed the ordinary construction costs.

The following summary describes components contained within an NDOT standard project that are not generally considered landscape and aesthetic costs:

#### Roadside Service Facilities

- Service area program as defined in the Design Synthesis report inclusive of program elements.

#### Non-motorized Transportation Systems

- Maintain existing sidewalk dimension of intersecting road across bridge overpass.
- Maintain existing bike lane dimension of intersecting road across bridge overpass.
- New bicycle paths and walkways that are part of an approved transportation plan.
- Six foot concrete sidewalk (community transition zones).
- Ten foot concrete sidewalk (community interface zones).
- Painted zebra pattern pedestrian crossing with pedestrian crossing sign.

#### Anti-graffiti Control and Removal

- Application of a long-term, non-sacrificial anti-graffiti treatment coating to all appropriate structures.

#### Bridge Structure

- Steel and concrete I-girders or steel and concrete box girder.
- Cast-in-place concrete with variable vertical ribbed design.
- Two color paint palette—base color with one accent color.
- Concrete barrier rail with acrylic stain base color application or steel rail with painted finish.

- Bridge/road name identification embossment.
- Pedestrian access across and under bridges used at interchanges and over topographic features.

#### Retaining Walls

- Cast-in-place or pre-cast concrete with fractured fin or similar pattern.
- Acrylic stain base color application.

#### Noise Walls

- Cast-in-place or pre-cast concrete with fractured fin or similar pattern.
- Acrylic stain base color application.
- Variation in sound wall geometry, material, color, texture, and pattern to eliminate monotonous, linear stretches of wall.

#### Concrete Barrier

- Cast-in-place concrete barrier.
- Acrylic stain base color application.

#### Guard Rail

- Galvanized steel thrie-beam guard rail.

#### Medians

- Revegetated median outside of community zones.
- Revegetated raised six-inch median with curb within community zones.

#### Fencing

- Chain link fencing with color application—vinyl clad or painted finish with steel post supports where required (community zones).
- Multi-strand wire fencing with painted steel post supports at right-of-way limits (rural areas).

## How to Read Landscape & Aesthetics (L&A) Costs:

1) Determine the cost of the NDOT standard treatment for softscape and hardscape.

Softscape  
(Native revegetation) – \$1.20 - \$1.40/sf  
Hardscape (Standard) – \$115 - \$120/sf

2) Determine the cost of the selected treatment type.

Softscape  
(Regionally adapted):  
\$2.40 - \$2.90/sf

Hardscape (Focal):  
\$180 - \$195/sf

3) Subtract the standard treatment cost for the cost of the selected treatment type.

Softscape:  
\$2.40 (Regionally adapted treatment cost)  
-\$1.20 (Standard treatment cost)  
= \$1.20 (Landscape and aesthetics cost)

Hardscape:  
\$180 (Focal treatment cost)  
-\$115 (Standard treatment cost)  
= \$65 (Landscape and aesthetics cost)

The portion of cost allocated as a landscape and aesthetics cost is the additional cost.



- Fencing required to control access, grading, and drainage.

### Grading

- Steepest desired slope of 3H:1V.
- Rounded slopes that blend into existing grade.
- See *Project Design Development Manual (PDDM)* 2.2.4.2 side slopes.

### Rock Cuts

- Rock cuts that appear natural in form and blend with existing landforms.
- Staining of rock cut to provide weathered finish.
- Rock fall protection structures, if necessary.

### Drainage

- Basic channel conveyance, culverts, and drainage structures.
- Erosion resistant channels.
- Water quality basins.
- Man-made or constructed wetlands fulfilling mitigation requirements.

### Erosion Control

- Provision of temporary erosion control during construction.
- Permanent erosion control.
- Temporary and permanent erosion control best management practices.

### Native Revegetation for All Disturbed Portions of Highway Construction

- Salvage and storage of topsoil (6 inch horizon minimum) with native plant fragments.
- Re-spreading of stockpiled topsoil and native plant fragments to minimum 6 inch depth (amend topsoil when necessary).

- Application of native plant revegetation seed mix in combination with scattered rock mulch.
- Supplemental irrigation to establish plantings when necessary (two year minimum by maintenance contract).
- Provide invasive and noxious weed control (two year minimum by maintenance contract).

### Construction and Maintenance Management Practices

- Use of dust control practices.
- Construction fencing to preserve sensitive areas.
- Maintenance period to ensure establishment of native revegetation.
- Development of a native revegetation general maintenance program.

### Project Components Required for Compliance

- All practices must be in compliance with applicable Federal and State regulations.

### Roadway Lighting

- Thirty foot high pole with galvanized finish, concrete foundation, and high pressure sodium luminaire (rural areas).
- Thirty foot high pole with powder-coat finish, concrete foundation with acrylic powder-coated base color application, and high pressure sodium luminaire with shoe-box fixture (community zones).

### Wildlife Crossing

- Under or overpass structures to allow maintenance of natural migration and animal travel patterns.
- Cast-in-place concrete bridges with textured finish and two-color paint palette.
- Wire mesh fencing with painted steel post supports.

## PROCESS

Costs (in 2006 dollars) for individual hardscape and softscape treatments, such as pedestrian crosswalks, curb extensions, raised planters, concrete form liner imprints, retaining walls, and landscape irrigation, were gathered from several sources, including NDOT, local engineering and landscape architecture firms, contractors, and product manufacturers. This information was analyzed and compiled into a database that could be applied to several prototypical examples of landscape and aesthetic treatment levels. The softscape and hardscape costs presented here represent the capital costs of construction and do not include extended maintenance costs. The treatments correlate to those presented in the *NDOT Landscape and Aesthetics Master Plan*. A separate report prepared by UNLV, entitled *Maintenance Cost Study for Corridor Planning*, examines long-term maintenance costs such as graffiti removal, pruning, and irrigation.

Prototypical designs for each of the five softscape types and four hardscape treatments were created for sections of highway rights-of-way outside of communities, in developing commercial areas, and in downtown areas. Within communities, designs were created for two-lane, three-lane, and four-lane roadway conditions. The project area was then incorporated into the estimate to create the square foot and acre cost analysis.

Overall cost estimates for each level of treatment were developed from these and compared to the costs from actual projects for verification. A similar process was applied to these areas to create a per square foot and per acre cost for each hardscape and softscape type.

**COST ESTIMATES**

Cost information presented here is provided for the purpose of long-range planning and budgeting. It is not intended to substitute for a project-level detailed cost projection.

**Softscape Treatments**

Using the process described above, planning level construction cost estimates for the different softscape treatments were determined in 2006 dollars. They are as follows:

**Softscape Type Cost Estimate (sf & acre)**

*Ground Treatment / Native Revegetation:*

\$1.20 - \$1.40/sf  
 \$52,500 - \$61,950/acre  
 L & A Cost \$0.00/sf  
 L & A Cost \$0.00/acre

*Enhanced Native:*

\$1.50 - \$1.70/sf  
 \$64,500 - \$74,000/acre  
 L & A Cost \$0.30 - \$0.50/sf  
 L & A Cost \$12,000 - \$21,500/acre

*Regionally Adapted:*

\$2.40 - \$2.90/sf  
 \$105,000 - \$126,000/acre  
 L & A Cost \$1.20 - \$1.70/sf  
 L & A Cost \$52,500 - \$73,500/acre

*Regional Ornamental:*

\$3.70 - \$6.50/sf  
 \$160,000 - \$280,000/acre  
 L & A Cost \$2.50 - \$5.30/sf  
 L & A Cost \$107,500 - \$227,500/acre

The cost for ground treatment/native revegetation is covered under the general construction costs as part of the NDOT standard. The data shown for the different treatment levels represents a total cost. The landscape & aesthetics cost is the portion of the total cost that is above the NDOT standard. For example, a regionally adapted softscape costs about \$1.20 per square foot more than the standard ground treatment / native revegetation level of treatment, for a total cost of \$2.40 per square foot (\$1.20 + \$1.20 = \$2.40). The additional \$1.20 per square foot is funded through the landscape & aesthetics 3% for new construction, or community partnerships because it is above and beyond the NDOT standard. The regional ornamental treatment exhibits the widest range of costs due to the highly customized nature of this type.

**Structures and Hardscape Treatments**

Within communities, the construction of curbs, sidewalks, and medians compose the majority of hardscape costs. Along elevated highways and bypasses, bridges and sound walls are the main hardscape cost components. For the purposes of cost estimation, the right-of-way conditions established for softscape costs were also used to determine hardscape costs. In addition, a 12,000 square foot (60 feet by 200 feet) bridge was assumed for elevated highways and bypasses. The estimate for the various hardscape levels is:

**Hardscape Type Cost Estimate (sf & total)**

*Standard:*  
 \$115 - \$120/sf  
 \$1,386,000 - \$1,500,000 total  
 L & A Cost \$0.00/sf  
 L & A Cost \$0.00 total

*Accentuated:*

\$132 - \$142/sf  
 \$1,575,000 - \$1,700,000 total  
 L & A Cost \$17 - \$27/sf  
 L & A Cost \$189,000 - \$200,000 total

*Focal:*

\$180 - \$195/sf  
 \$2,145,000 - \$2,335,000 total  
 L & A Cost \$65 - \$80/sf  
 L & A Cost \$759,000 - \$949,000 total

*Landmark:*

\$225 - \$270/sf  
 \$2,646,000 - \$3,150,000 total  
 L & A Cost \$110 - \$155/sf  
 L & A Cost \$1,260,000 - \$1,764,000 total

The cost for the standard treatment would be covered by the general capital construction budget. The treatment levels are represented as a total cost and the landscape & aesthetics cost represents the portion to be covered by the landscape and aesthetics 3% for new construction or community partnerships. The landmark level shows the widest range

of cost because of the custom nature of many elements such as complex concrete form liners, custom railings, and transportation art that are included in this treatment.

To place the estimates in the context of a highway corridor, an estimate was calculated for a one mile section of road. Typical sections of highway right-of-way for rural and community applications were developed. Two lane (50 foot ROW), three lane (76-foot ROW), and four lane (102 foot ROW) examples for both suburban and downtown applications were used to determine this value (Figures 17-48, pages 4.6 - 4.11). The approximate softscape and hardscape costs to develop one mile of corridor right-of-way at each treatment level were estimated.

**STRUCTURES AND HARDSCAPE TYPES AND TREATMENTS**

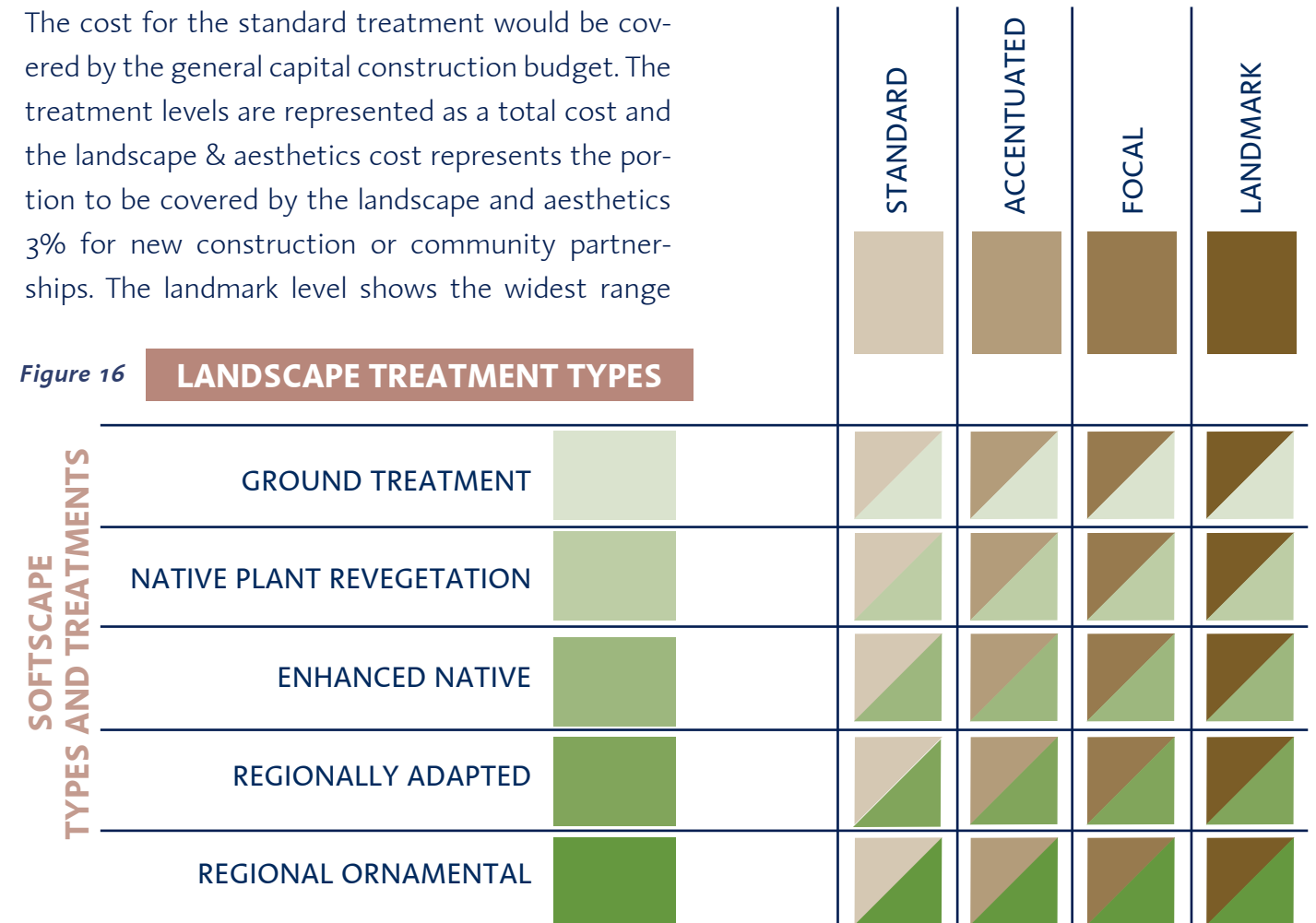
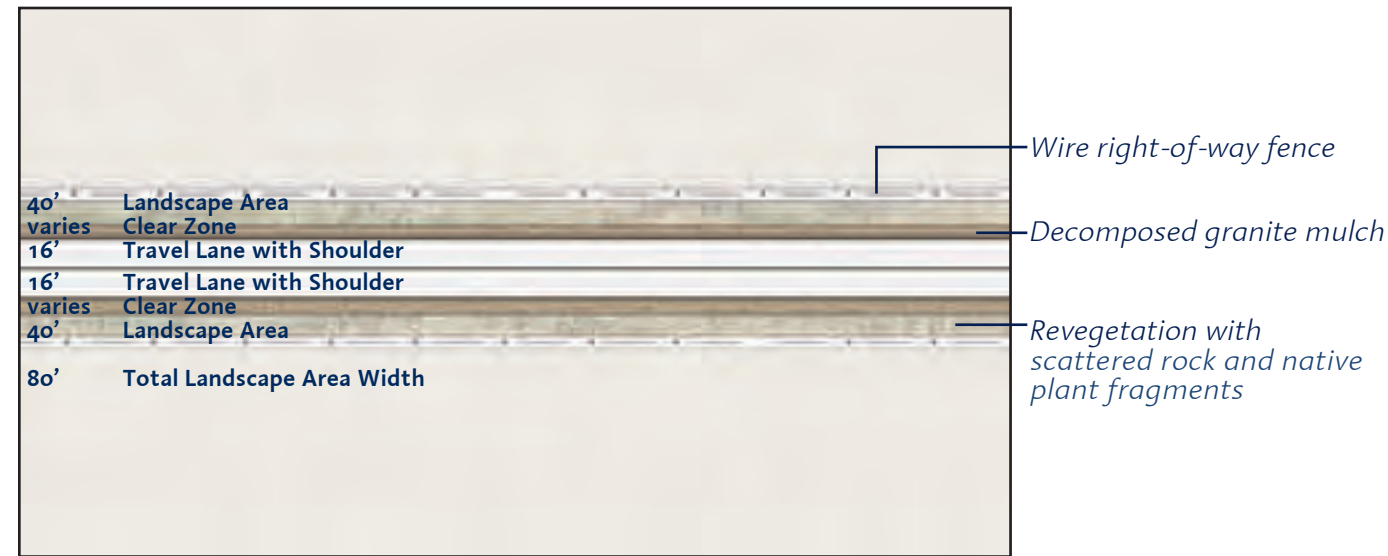


Figure 16 LANDSCAPE TREATMENT TYPES



**FIGURE 17 - RURAL HIGHWAY**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**

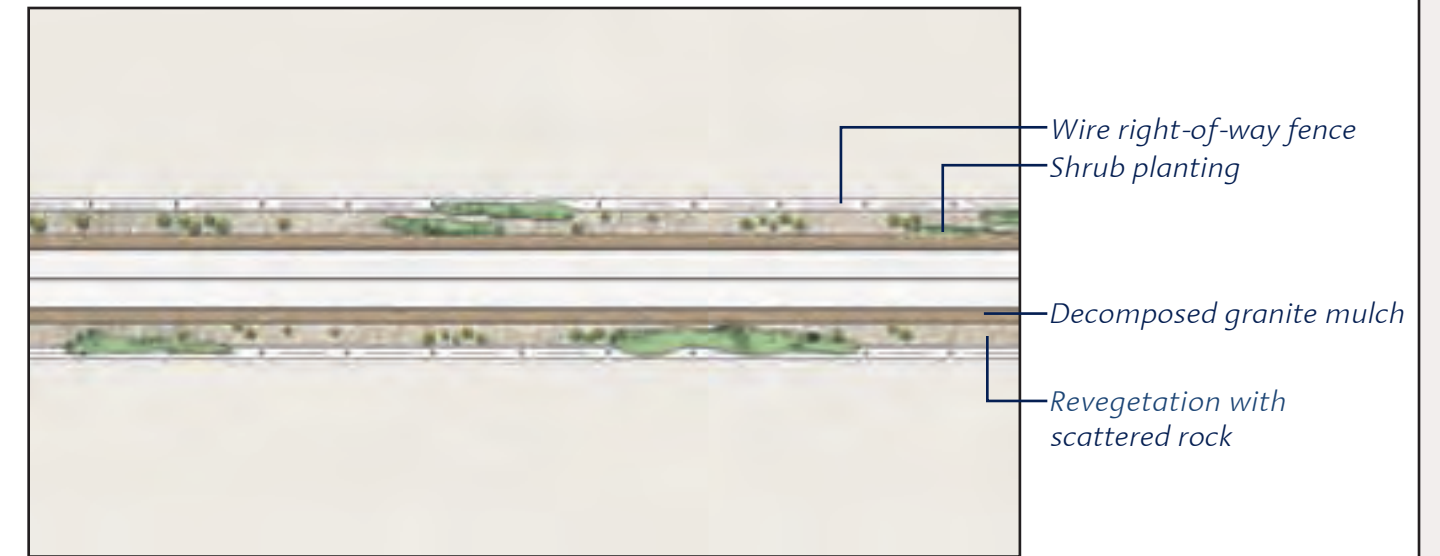


Total Cost: \$35,000 - \$42,000/acre of ROW area

L&A Cost: \$0/acre

**FIGURE 18 - RURAL HIGHWAY**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accentuated**

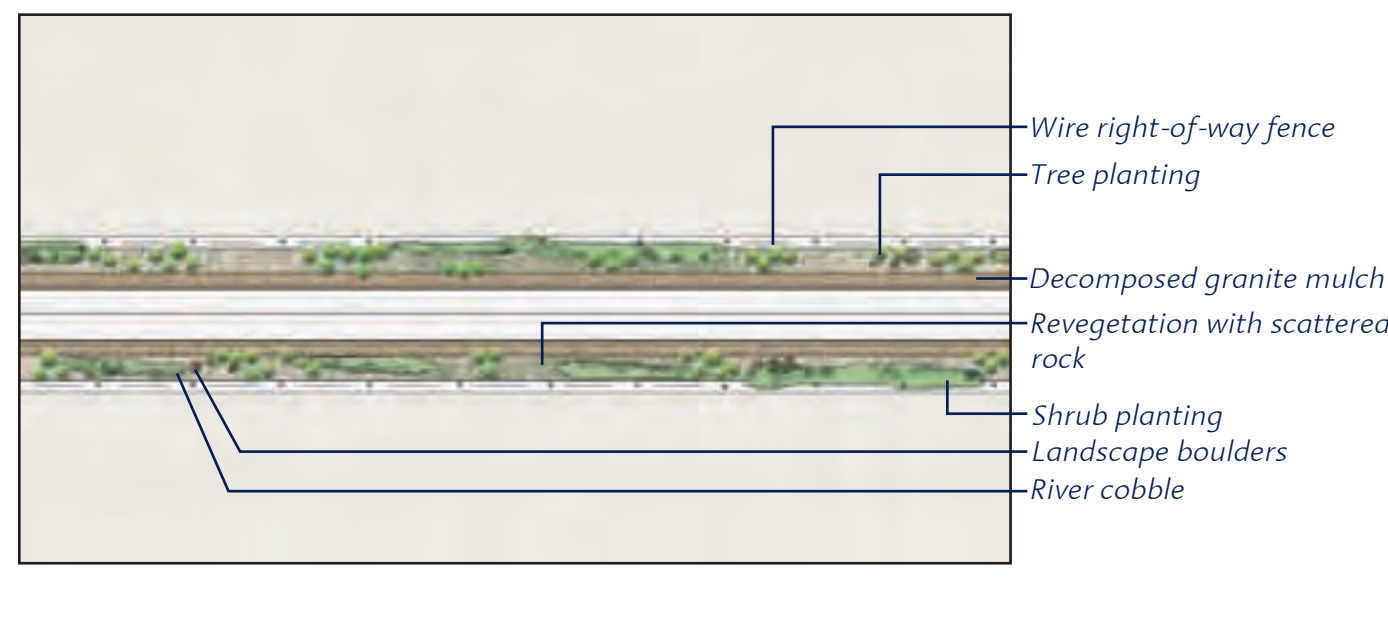


Total Cost: \$43,000 - \$50,000/acre of ROW area

L&A Cost: \$8,000 - \$14,000/acre

**FIGURE 19 - RURAL HIGHWAY**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**

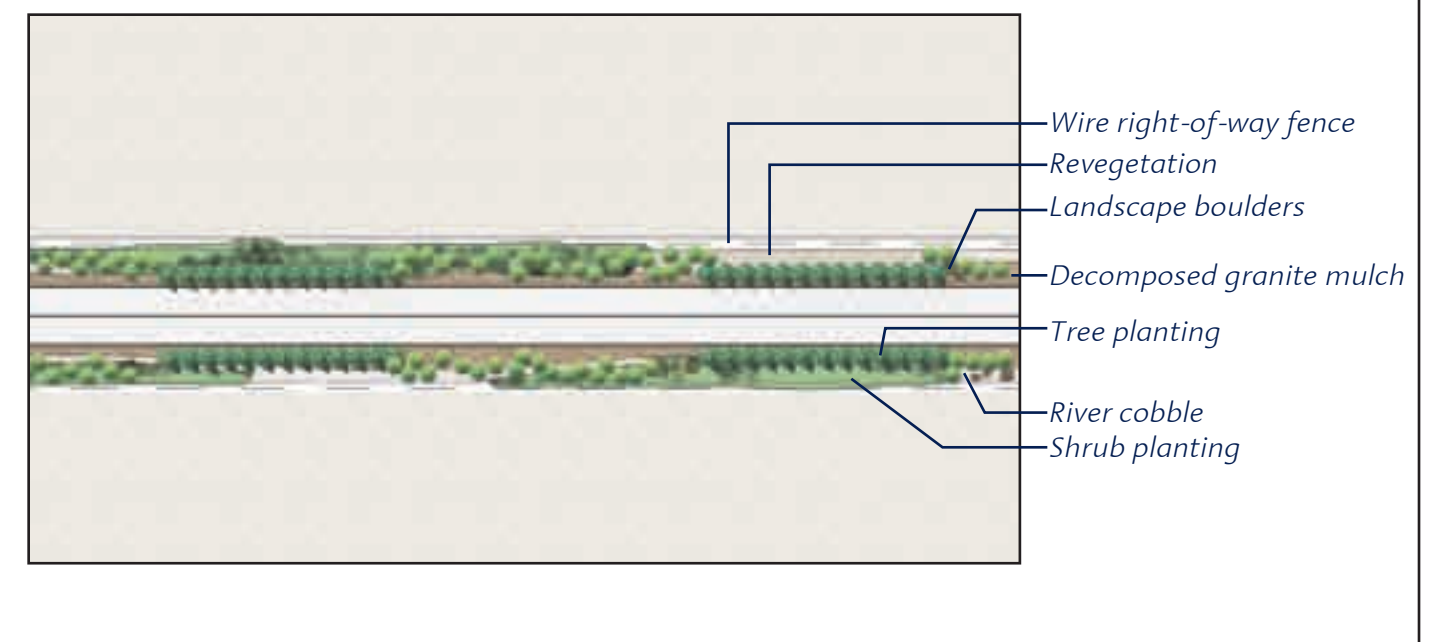


Total Cost: \$69,000 - \$85,000/acre of ROW area

L&A Cost: \$34,000 - \$50,000/acre

**FIGURE 20 - RURAL HIGHWAY**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**

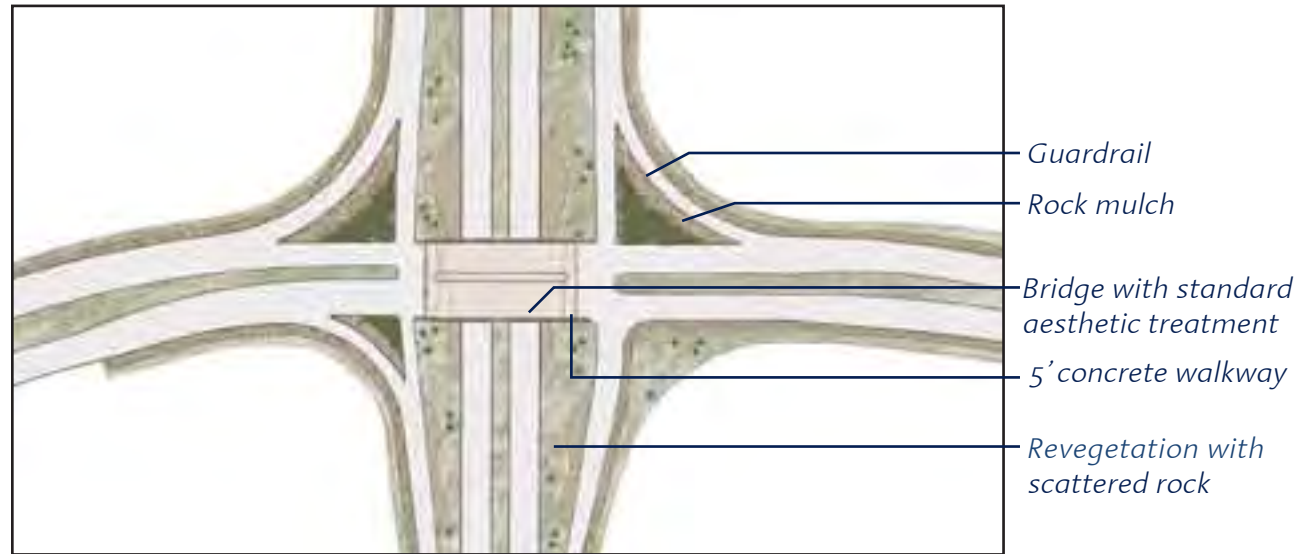


Total Cost: \$107,000 - \$185,000/acre of ROW area

L&A Cost: \$72,000 - \$150,000/acre

**FIGURE 21 - FREEWAY OR ELEVATED HIGHWAY INTERCHANGES**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**

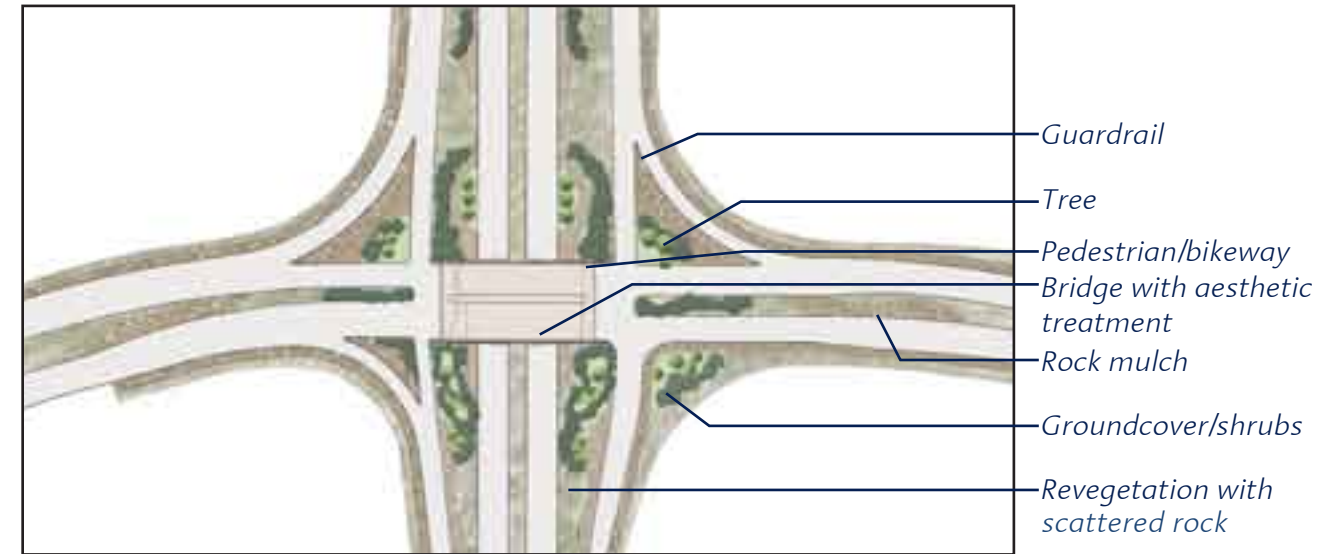


Total Cost: \$1,785,000 (infield landscape and bridge deck)

L&A Cost: \$0.00/acre

**FIGURE 22 - FREEWAY OR ELEVATED HIGHWAY INTERCHANGES**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accentuated**

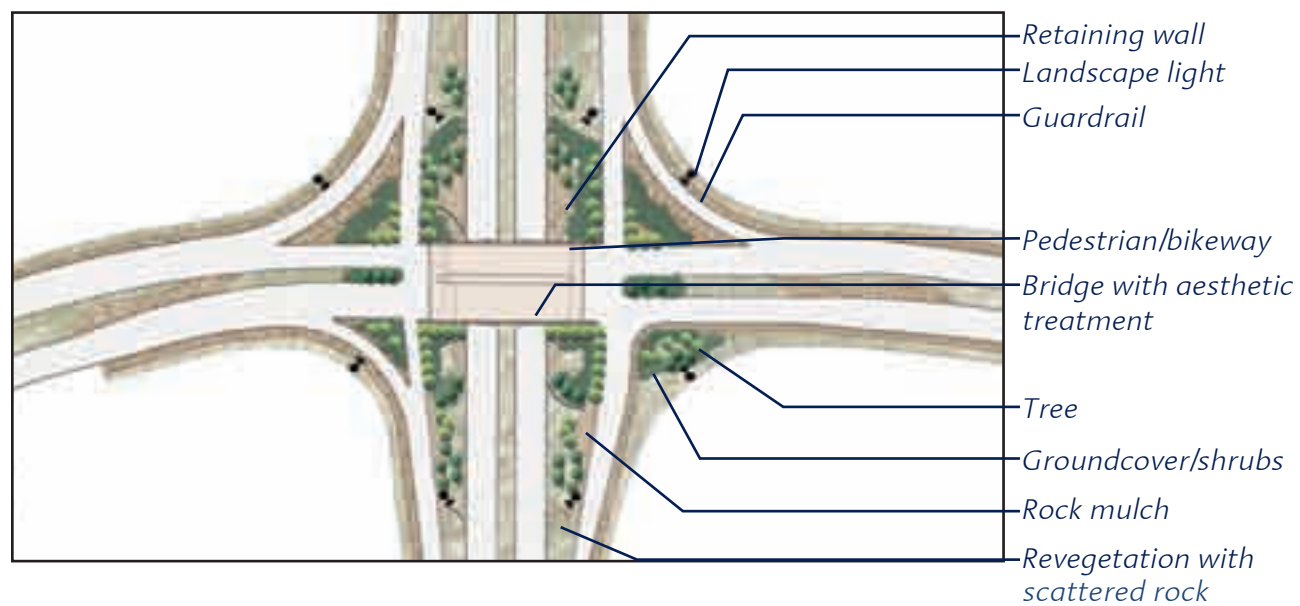


Total Cost: \$2,100,000 (infield landscape and bridge deck)

L&A Cost: \$315,000/acre

**FIGURE 23 - FREEWAY OR ELEVATED HIGHWAY INTERCHANGES**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**

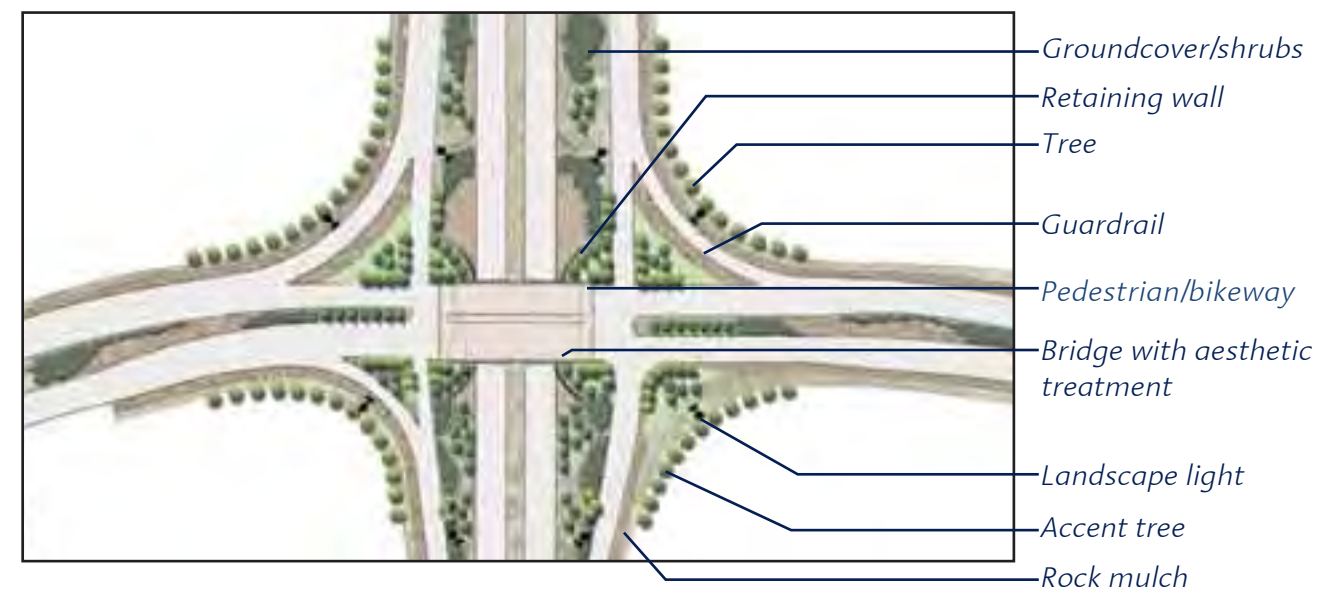


Total Cost: \$2,890,000 (infield landscape and bridge deck)

L&A Cost: \$1,105,000/acre

**FIGURE 24 - FREEWAY OR ELEVATED HIGHWAY INTERCHANGES**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**



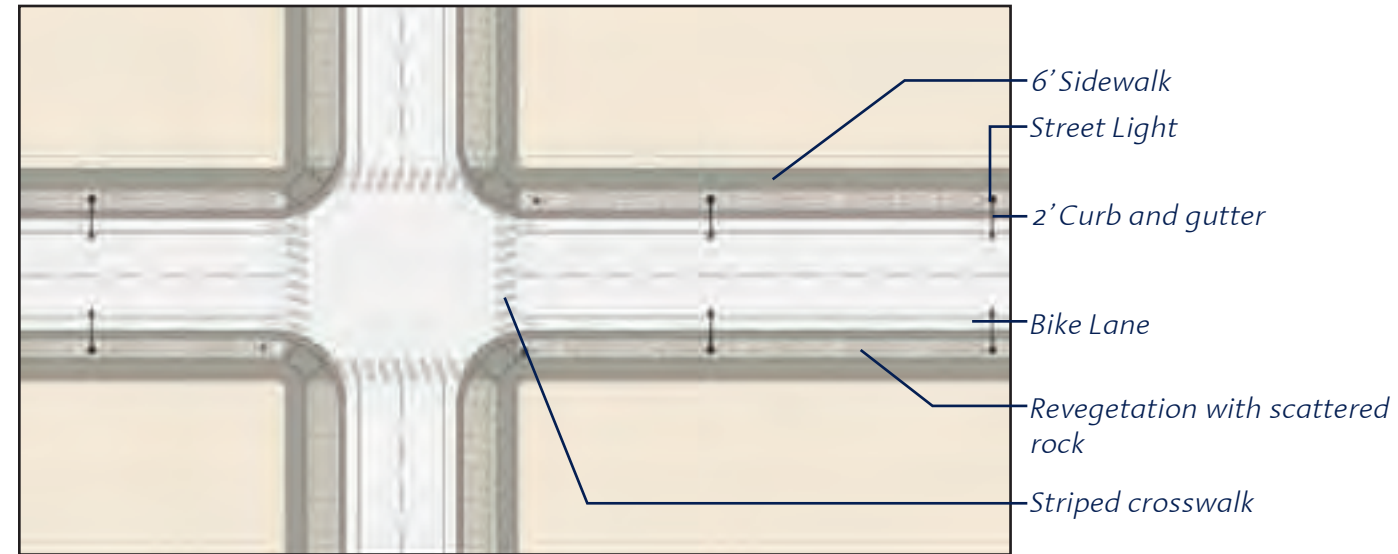
Total Cost: \$4,200,000 (infield landscape and bridge deck)

L&A Cost: \$2,415,000/acre



**FIGURE 25 - TWO LANE SUBURBAN HIGHWAY**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**

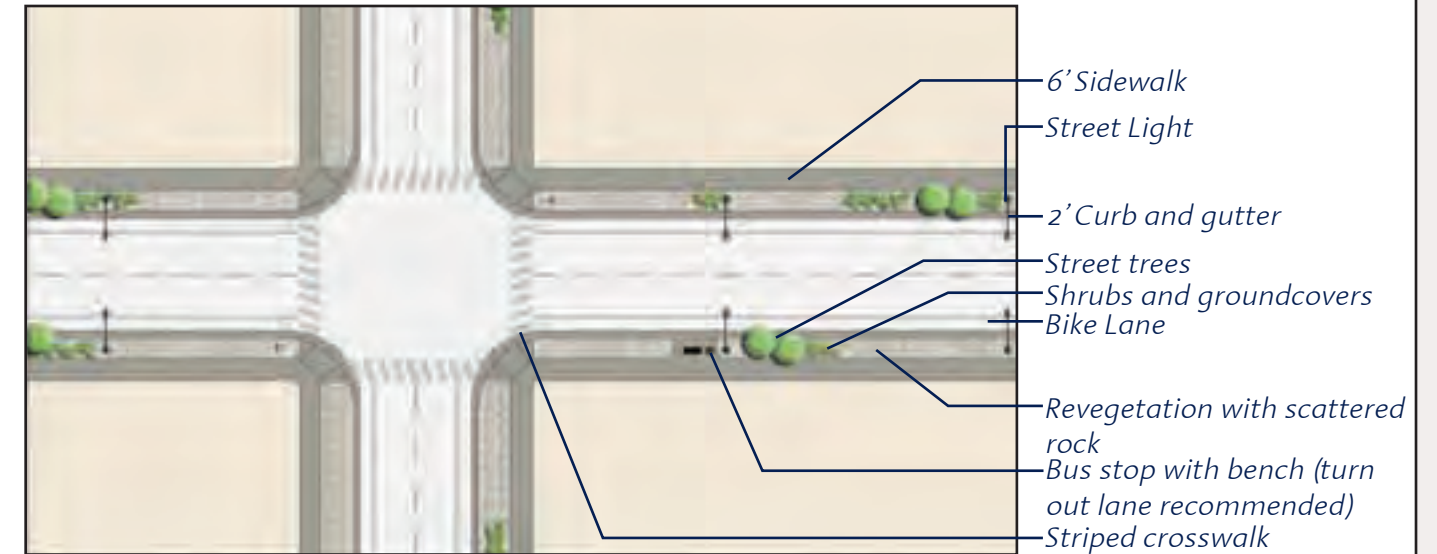


Total Cost: \$1,627,000 - \$1,908,000/mile of ROW

L&A Cost: \$0.00/mile

**FIGURE 26 - TWO LANE SUBURBAN HIGHWAY**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accentuated**

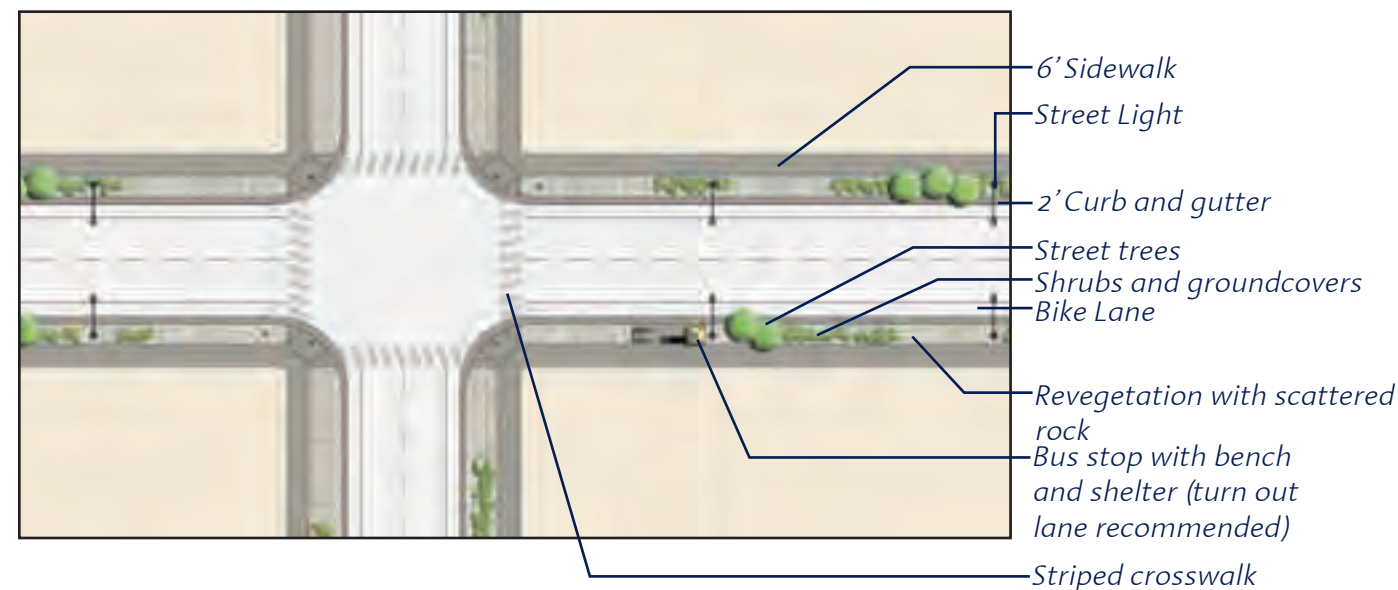


Total Cost: \$1,696,000 - \$2,025,000/mile of ROW

L&A Cost: \$69,000 - \$117,000/mile

**FIGURE 27 - TWO LANE SUBURBAN HIGHWAY**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**

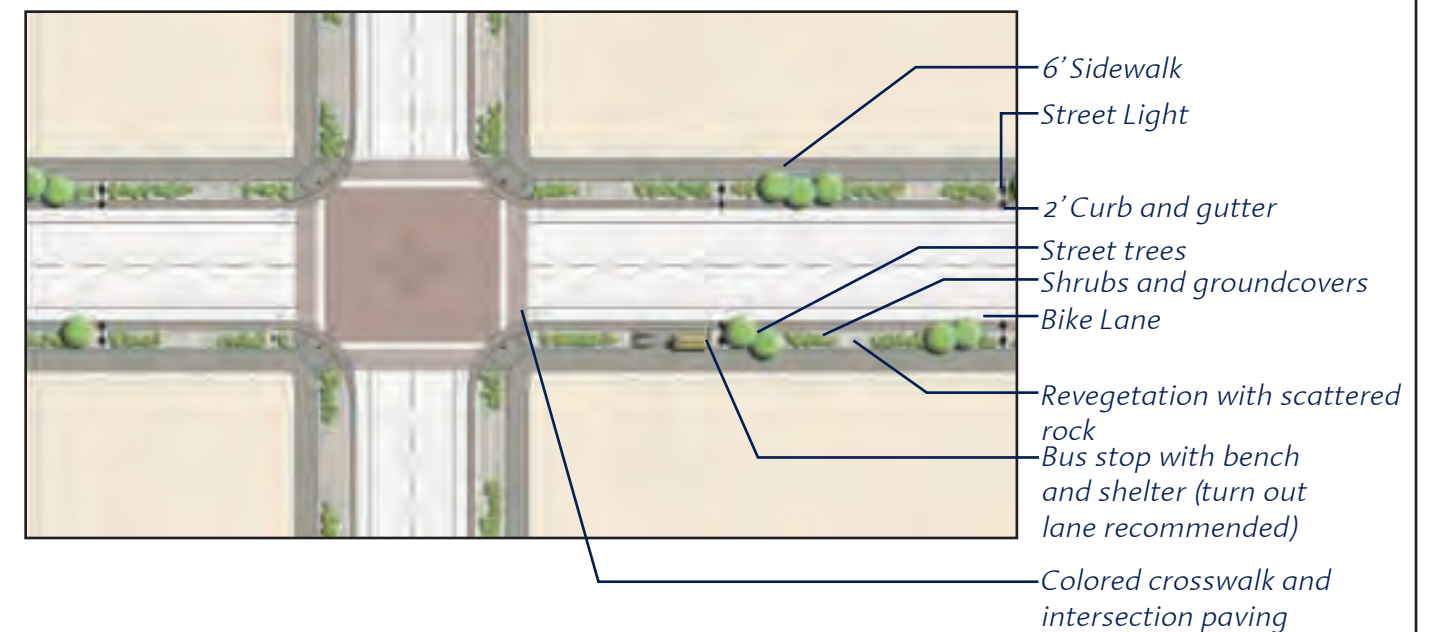


Total Cost: \$2,128,000 - \$2,509,000/mile of ROW

L&A Cost: \$501,000 - \$601,000/mile

**FIGURE 28 - TWO LANE SUBURBAN HIGHWAY**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**

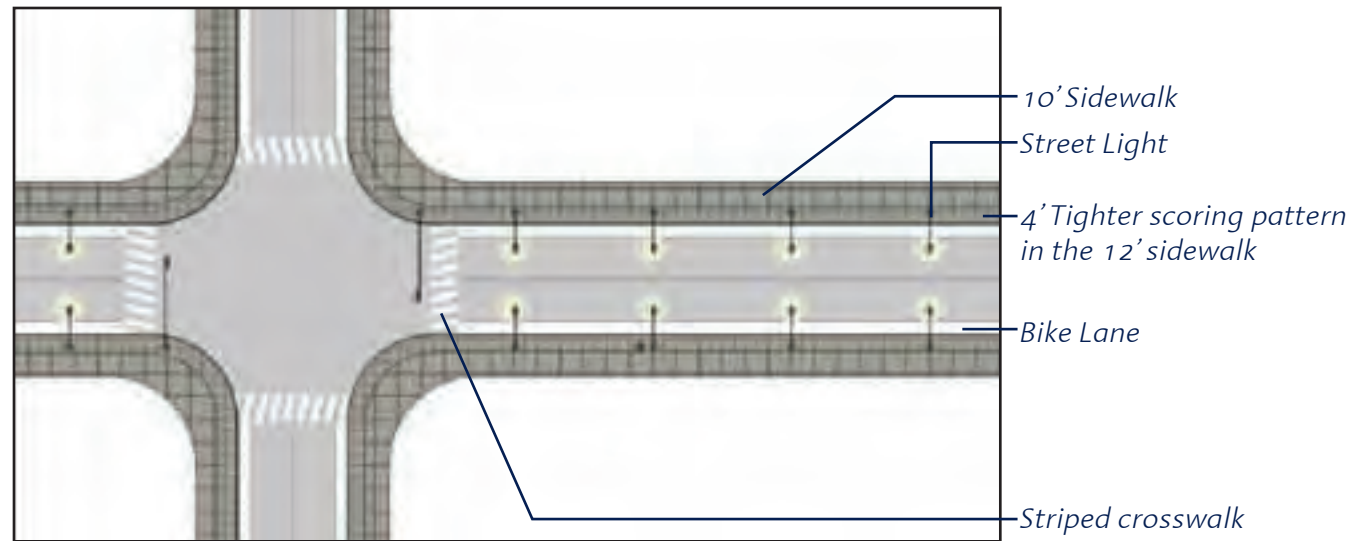


Total Cost: \$2,846,000 - \$4,336,000/mile of ROW

L&A Cost: \$1,219,000 - \$2,428,000/mile



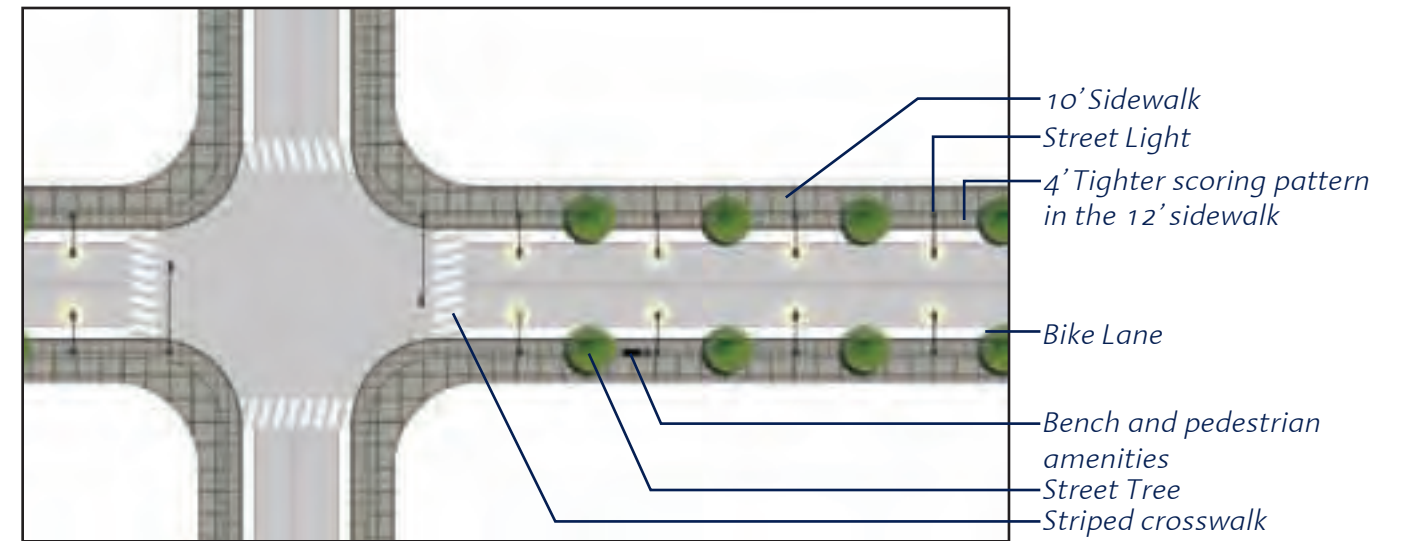
**FIGURE 29 - TWO LANE DOWNTOWN HIGHWAY**  
 Softscape Types - **Ground Treatment/Native Revegetation**  
 Structures and Hardscape Type - **Standard**



Total Cost: \$3,148,000 - \$3,644,000/mile of ROW

L&A Cost: \$0.00/mile

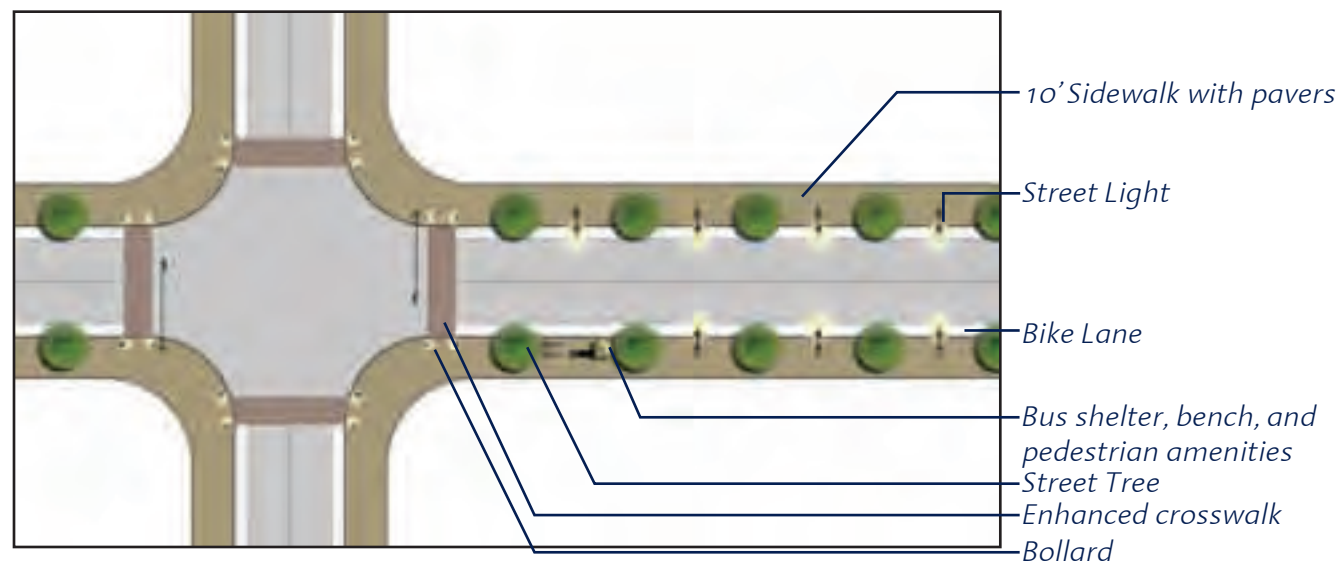
**FIGURE 30 - TWO LANE DOWNTOWN HIGHWAY**  
 Softscape Types - **Enhanced Native**  
 Structures and Hardscape Type - **Accentuated**



Total Cost: \$3,419,000 - \$3,973,000/mile of ROW

L&A Cost: \$271,000 - \$329,000/mile

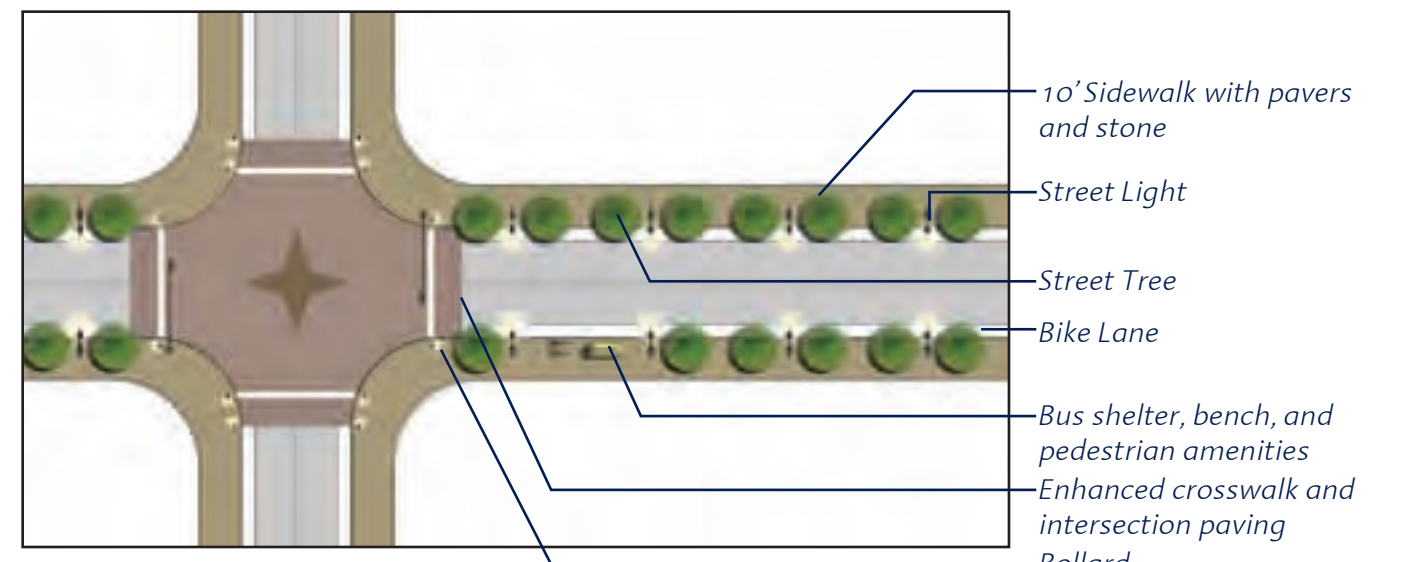
**FIGURE 31 - TWO LANE DOWNTOWN HIGHWAY**  
 Softscape Types - **Regionally Adapted**  
 Structures and Hardscape Type - **Focal**



Total Cost: \$4,218,000 - \$5,609,000/mile of ROW

L&A Cost: \$1,070,000 - \$1,965,000/mile

**FIGURE 32 - TWO LANE DOWNTOWN HIGHWAY**  
 Softscape Types - **Regional Ornamental**  
 Structures and Hardscape Type - **Landmark**

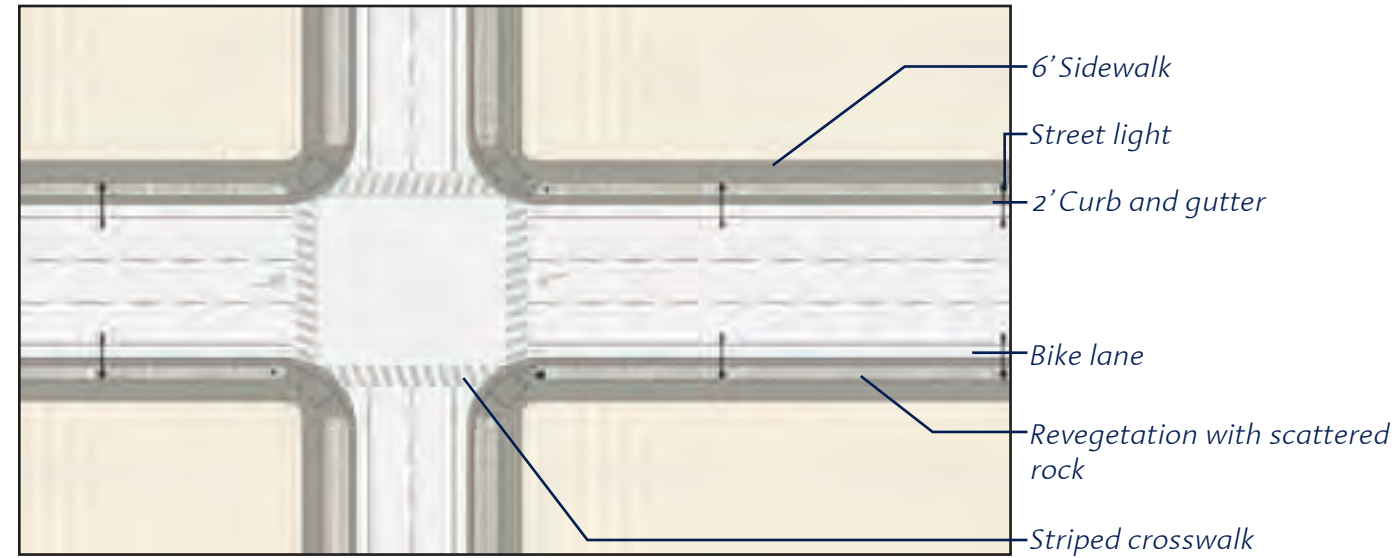


Total Cost: \$5,579,000 - \$8,089,000/mile of ROW

L&A Cost: \$2,431,000 - \$4,445,000/mile

**FIGURE 33 - THREE LANE SUBURBAN HIGHWAY**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**

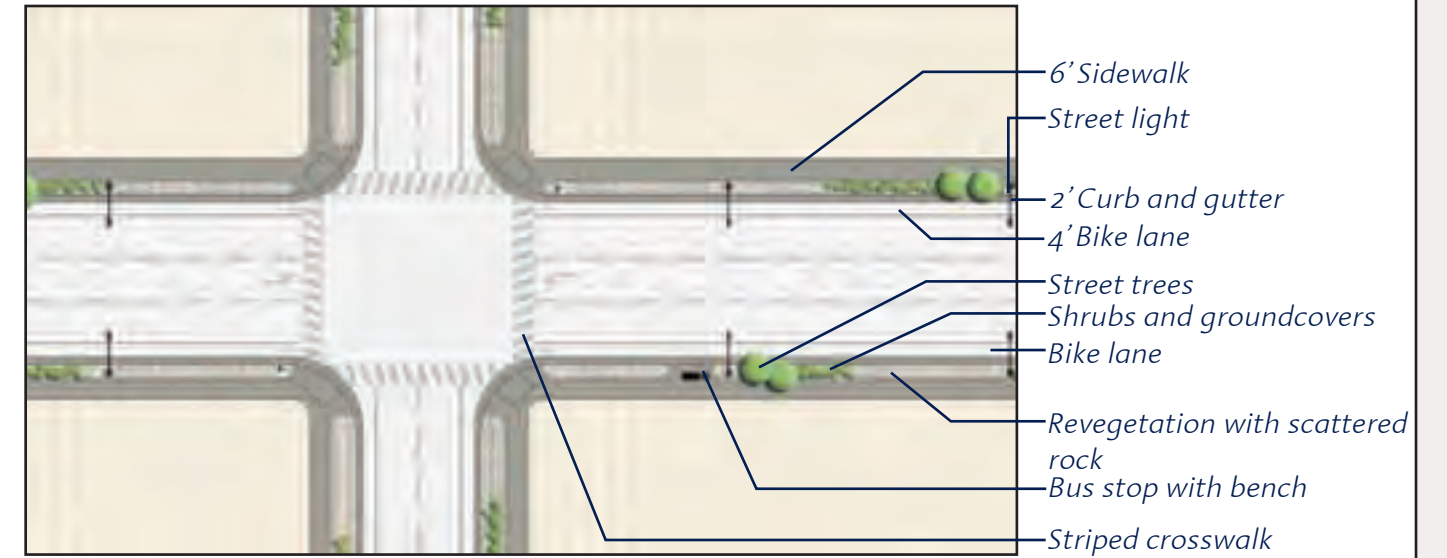


Total Cost: \$1,647,000 - \$1,934,000/mile of ROW

L&A Cost: \$0.00/mile

**FIGURE 34 - THREE LANE SUBURBAN HIGHWAY**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accentuated**

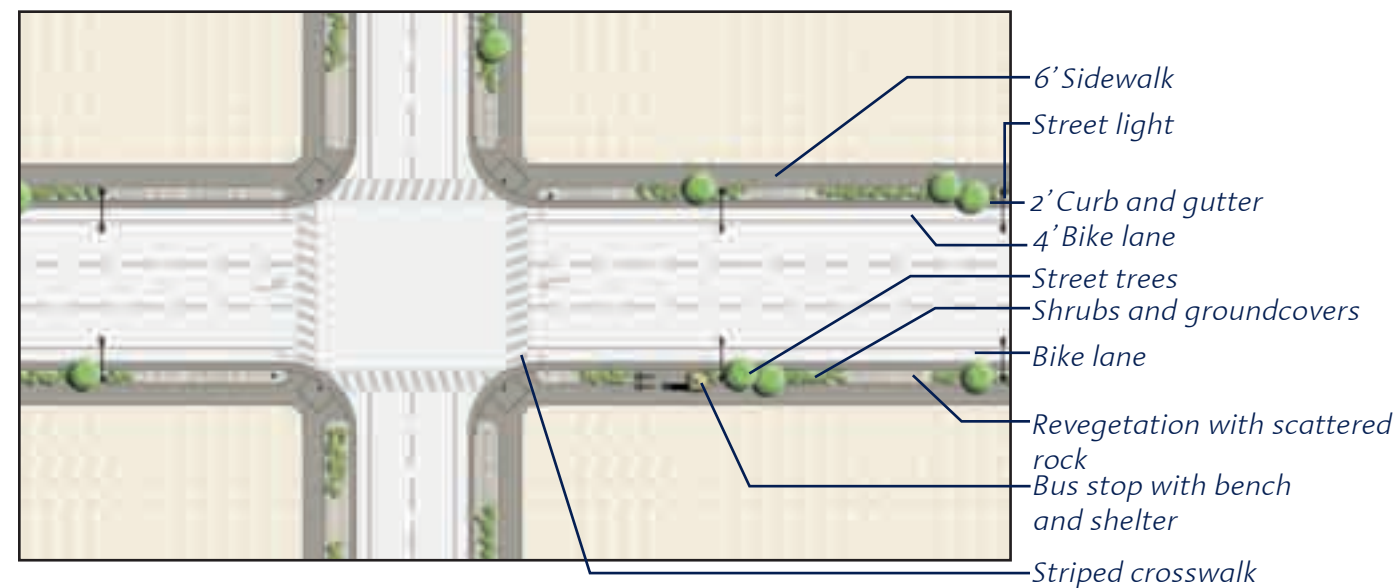


Total Cost: \$1,706,000 - \$2,033,000/mile of ROW

L&A Cost: \$59,000 - \$99,000/mile

**FIGURE 35 - THREE LANE SUBURBAN HIGHWAY**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**

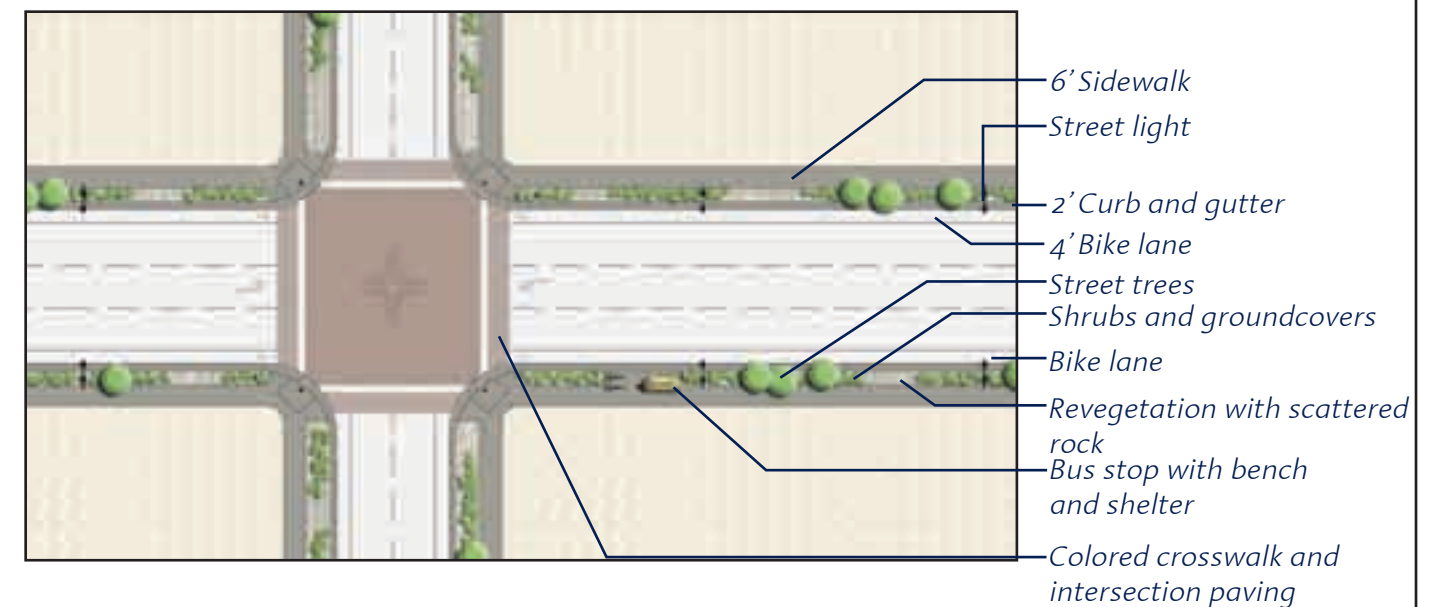


Total Cost: \$2,150,000 - \$2,535,000/mile of ROW

L&A Cost: \$503,000 - \$601,000/mile

**FIGURE 36 - THREE LANE SUBURBAN HIGHWAY**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**



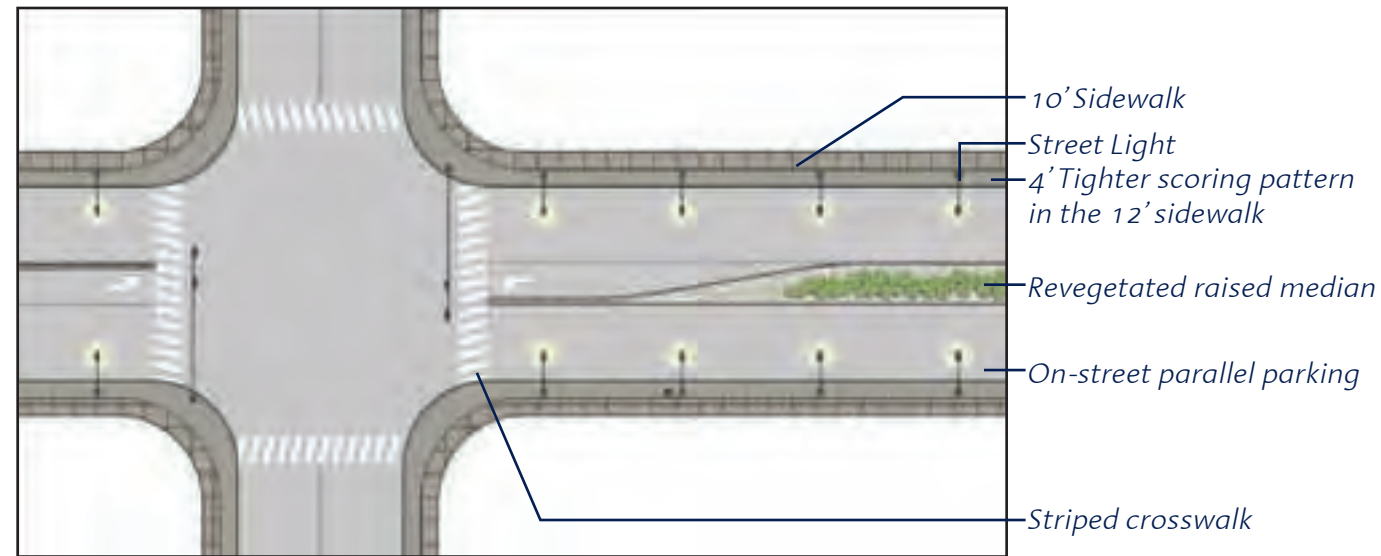
Total Cost: \$2,982,000 - \$4,550,000/mile of ROW

L&A Cost: \$1,335,000 - \$2,616,000/mile



**FIGURE 37 - THREE LANE DOWNTOWN HIGHWAY**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**



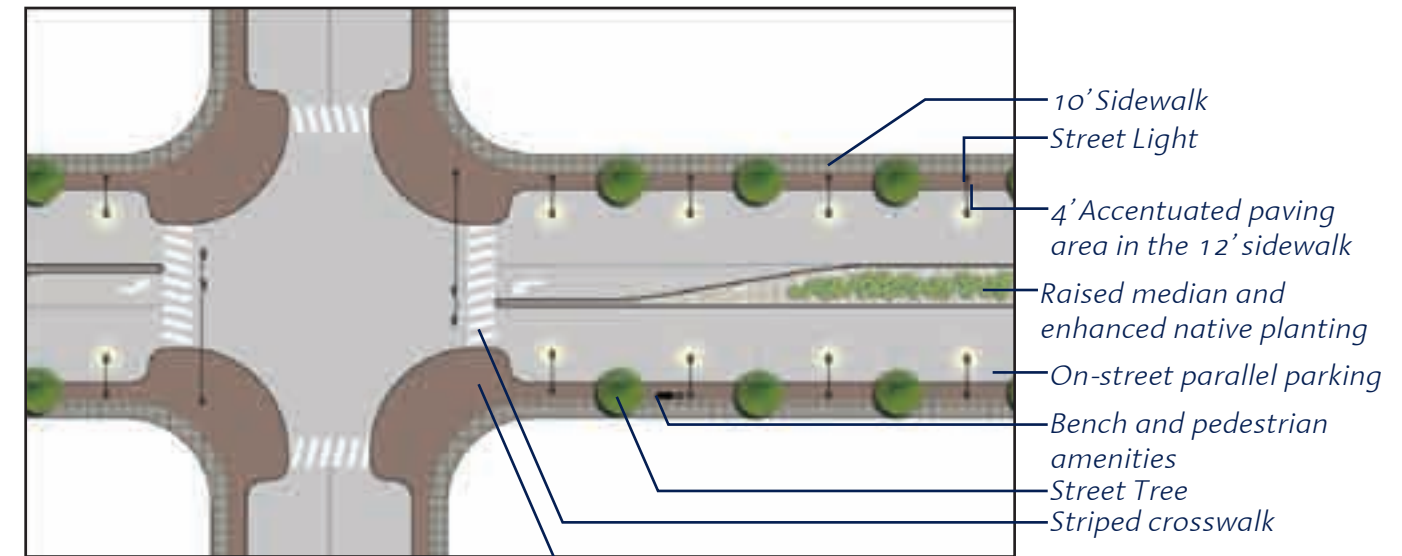
- 10' Sidewalk
- Street Light
- 4' Tighter scoring pattern in the 12' sidewalk
- Revegetated raised median
- On-street parallel parking
- Striped crosswalk

Total Cost: \$3,101,000 - \$3,594,000/mile of ROW

L&A Cost: \$0.00/mile

**FIGURE 38 - THREE LANE DOWNTOWN HIGHWAY**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accented**



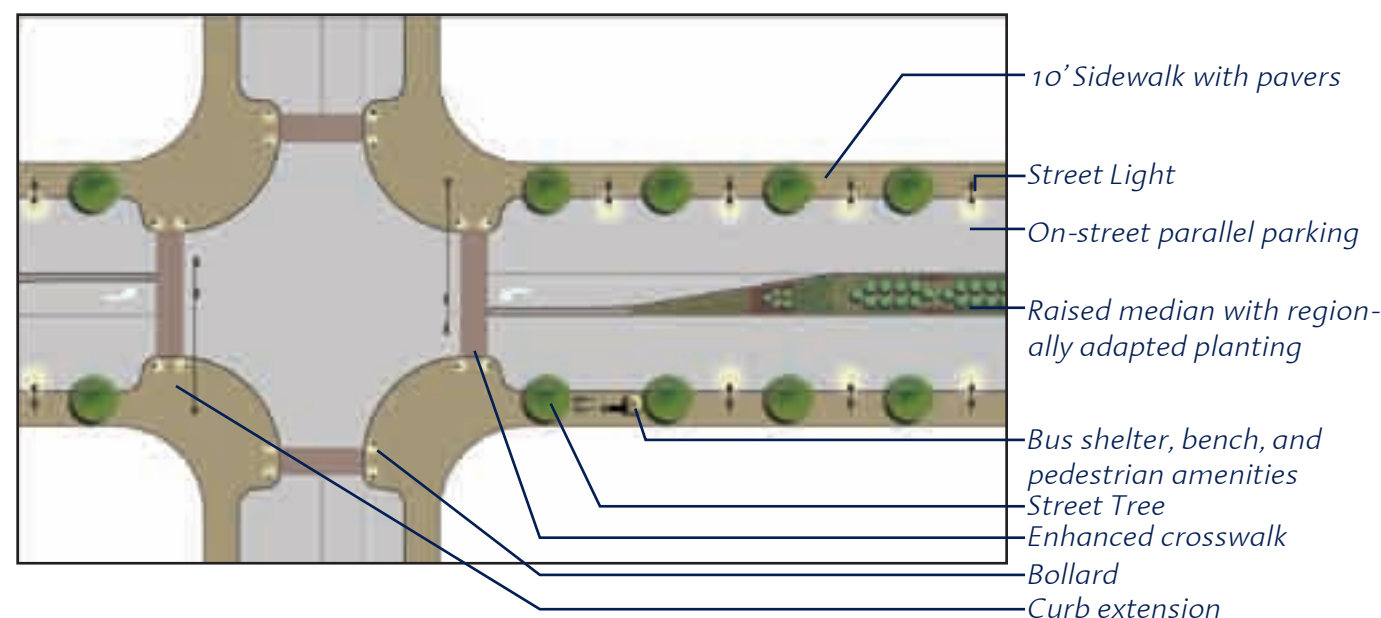
- 10' Sidewalk
- Street Light
- 4' Accented paving area in the 12' sidewalk
- Raised median and enhanced native planting
- On-street parallel parking
- Bench and pedestrian amenities
- Street Tree
- Striped crosswalk
- Curb extension

Total Cost: \$4,385,000 - \$4,990,00/mile of ROW

L&A Cost: \$1,284,000 - \$1,396,000/mile

**FIGURE 39 - THREE LANE DOWNTOWN HIGHWAY**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**



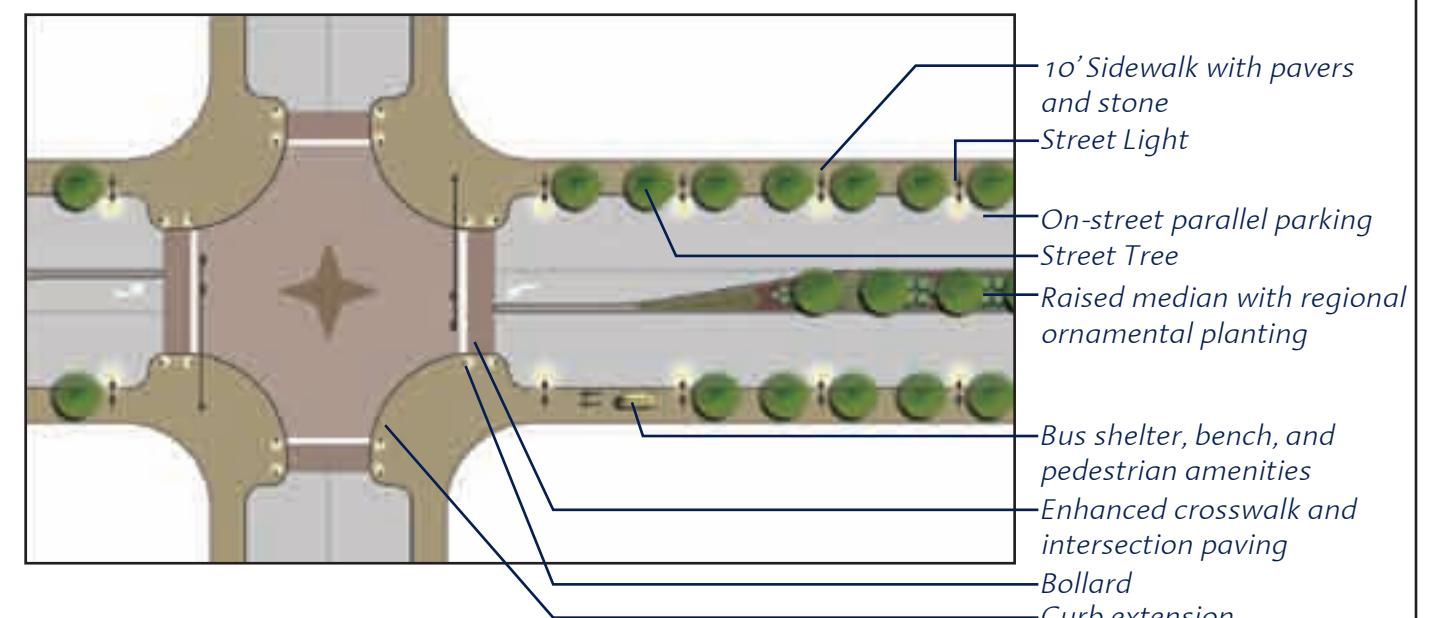
- 10' Sidewalk with pavers
- Street Light
- On-street parallel parking
- Raised median with regionally adapted planting
- Bus shelter, bench, and pedestrian amenities
- Street Tree
- Enhanced crosswalk
- Bollard
- Curb extension

Total Cost: \$4,779,000 - \$6,624,000/mile of ROW

L&A Cost: \$1,678,000 - \$3,030,000/mile

**FIGURE 40 - THREE LANE DOWNTOWN HIGHWAY**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**



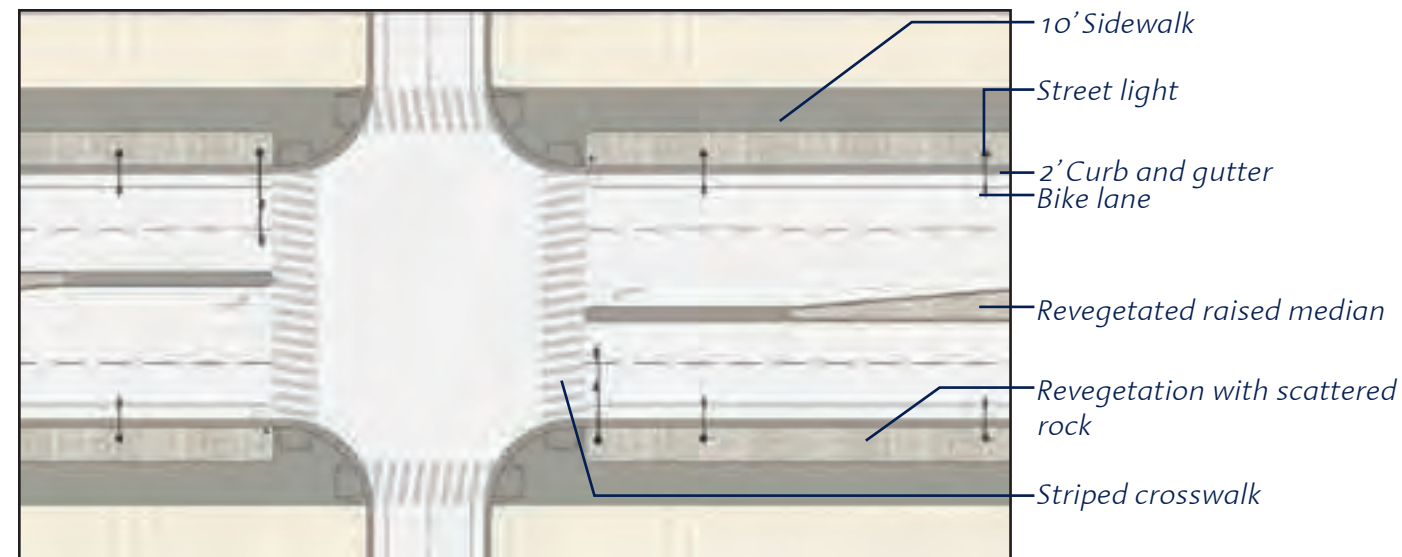
- 10' Sidewalk with pavers and stone
- Street Light
- On-street parallel parking
- Street Tree
- Raised median with regional ornamental planting
- Bus shelter, bench, and pedestrian amenities
- Enhanced crosswalk and intersection paving
- Bollard
- Curb extension

Total Cost: \$5,926,000 - \$7,411,000/mile of ROW

L&A Cost: \$2,825,000 - \$3,817,000/mile

**FIGURE 41 - FOUR LANE SUBURBAN HIGHWAY**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**

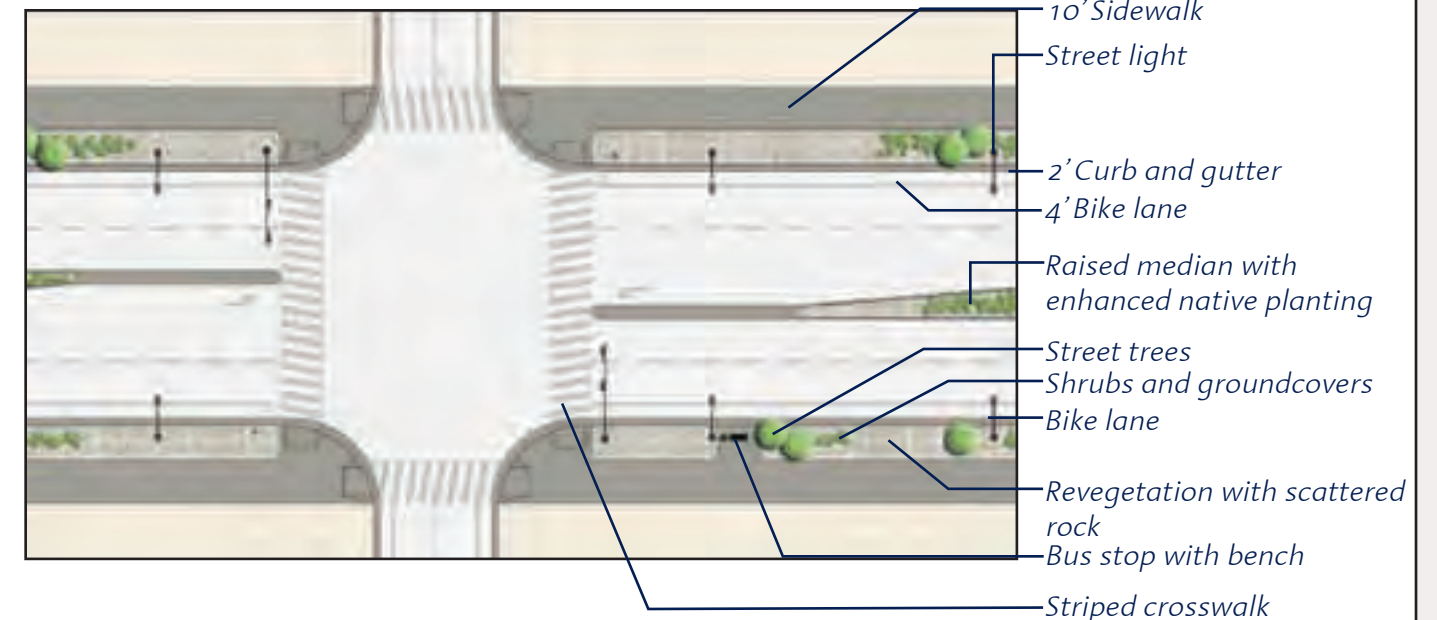


Total Cost: \$2,479,000 - \$2,916,000/mile of ROW

L&A Cost: \$0.00/mile

**FIGURE 42 - FOUR LANE SUBURBAN HIGHWAY**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accentuated**

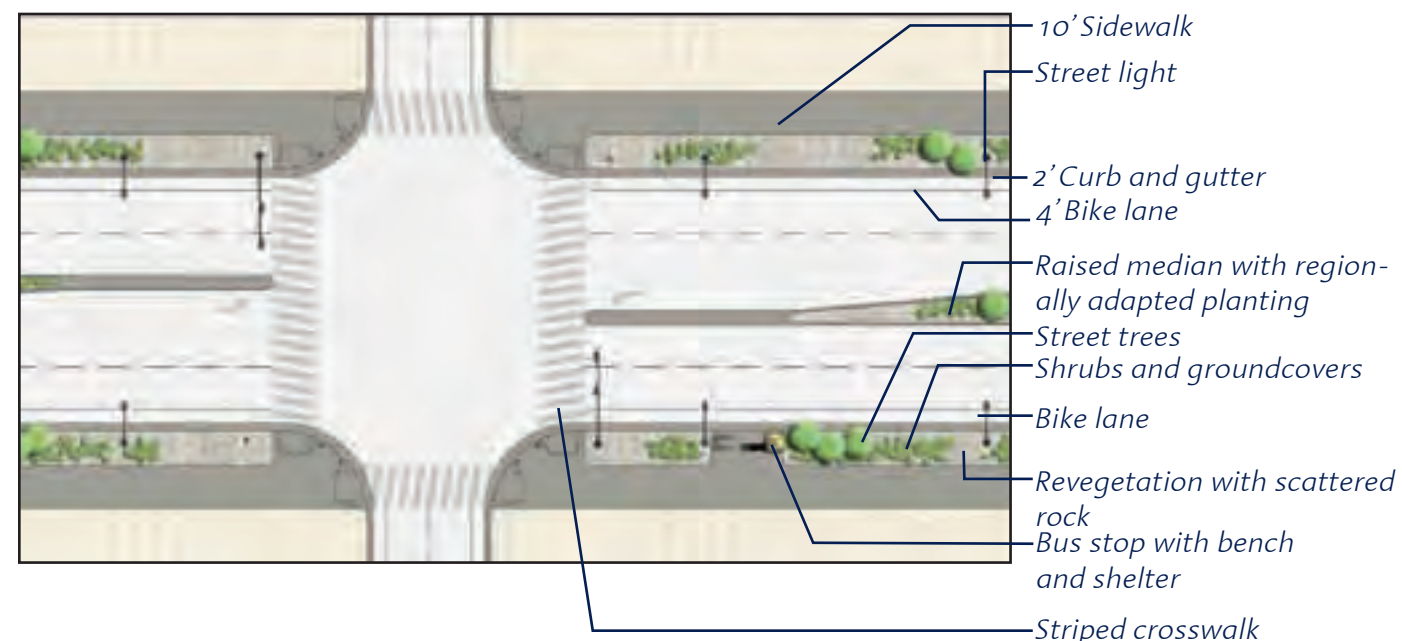


Total Cost: \$2,621,000 - \$3,113,000/mile of ROW

L&A Cost: \$142,000 - \$197,000/mile

**FIGURE 43 - FOUR LANE SUBURBAN HIGHWAY**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**

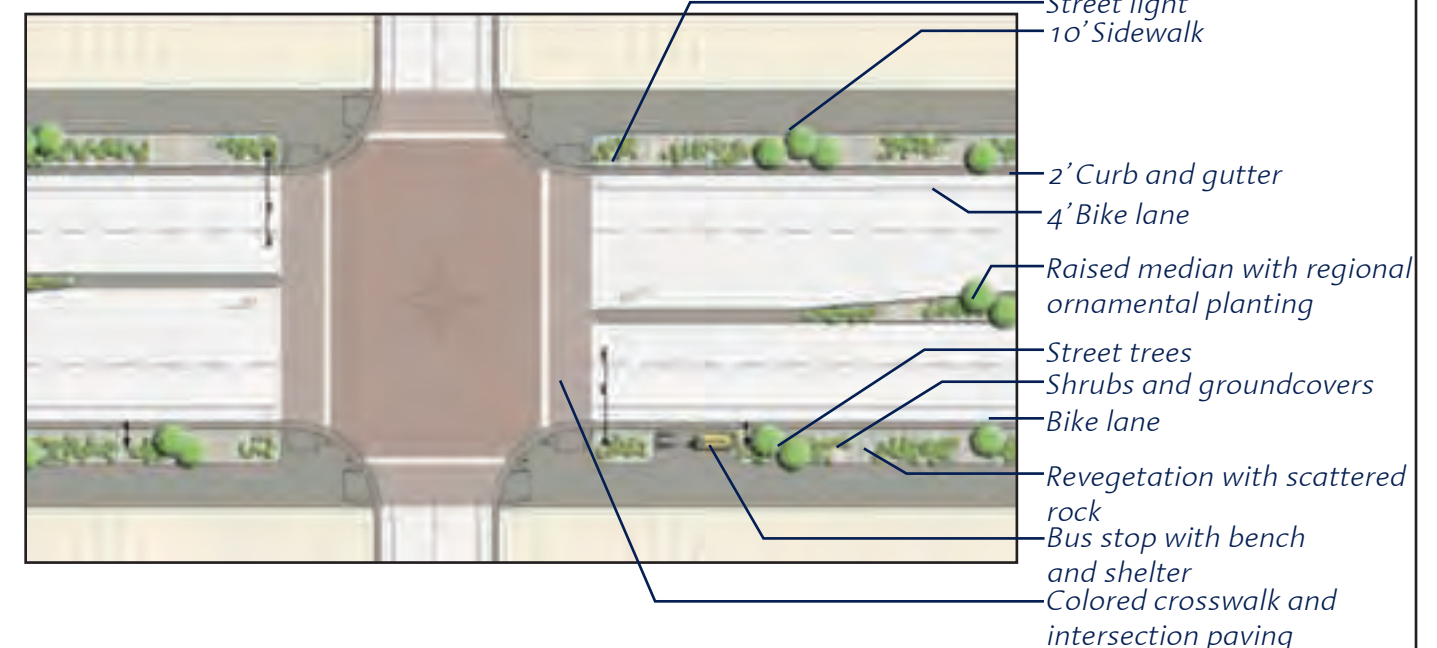


Total Cost: \$3,465,000 - \$4,038,000/mile of ROW

L&A Cost: \$986,000 - \$1,122,000/mile

**FIGURE 44 - FOUR LANE SUBURBAN HIGHWAY**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**



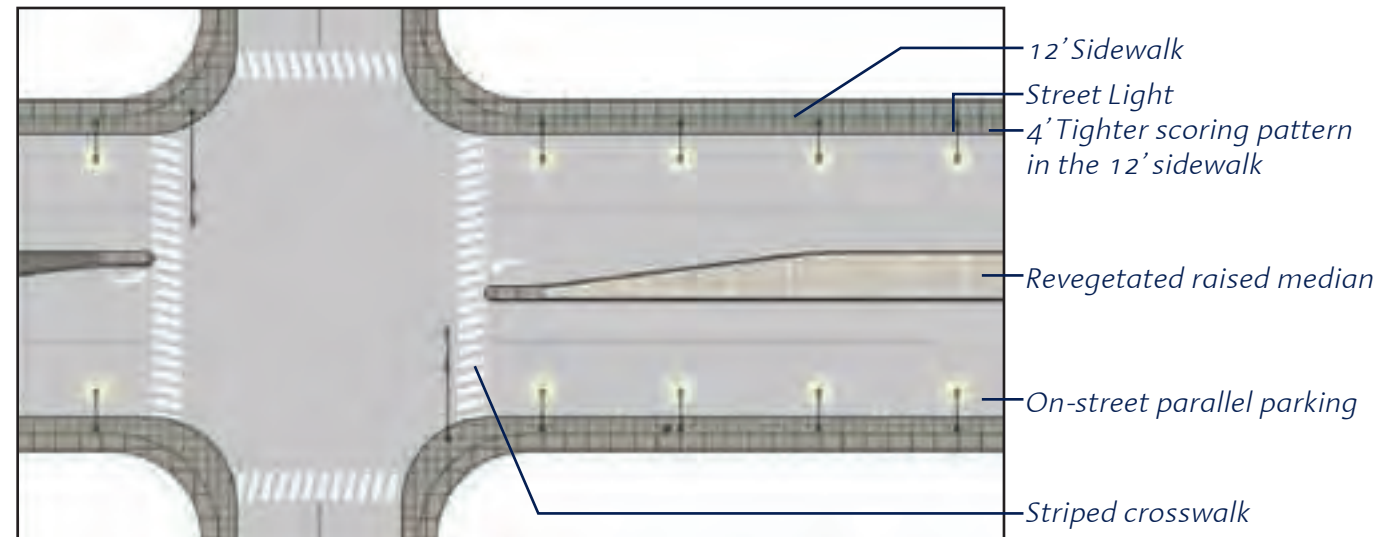
Total Cost: \$4,619,000 - \$7,165,000/mile of ROW

L&A Cost: \$2,140,000 - \$4,249,000/mile



**FIGURE 45 - FOUR LANE DOWNTOWN HIGHWAY**

Softscape Types - **Ground Treatment/Native Revegetation**  
Structures and Hardscape Type - **Standard**

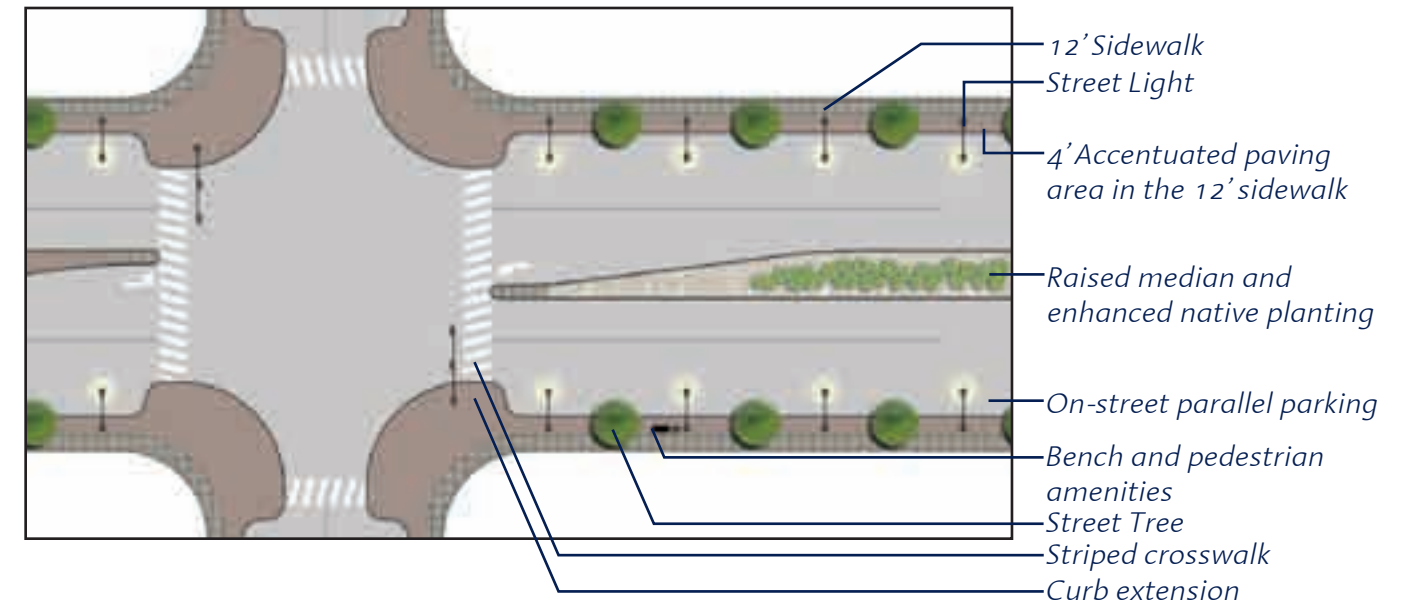


Total Cost: \$3,172,000 - \$3,681,000/mile of ROW

L&A Cost: \$0.00/mile

**FIGURE 46 - FOUR LANE DOWNTOWN HIGHWAY**

Softscape Types - **Enhanced Native**  
Structures and Hardscape Type - **Accentuated**

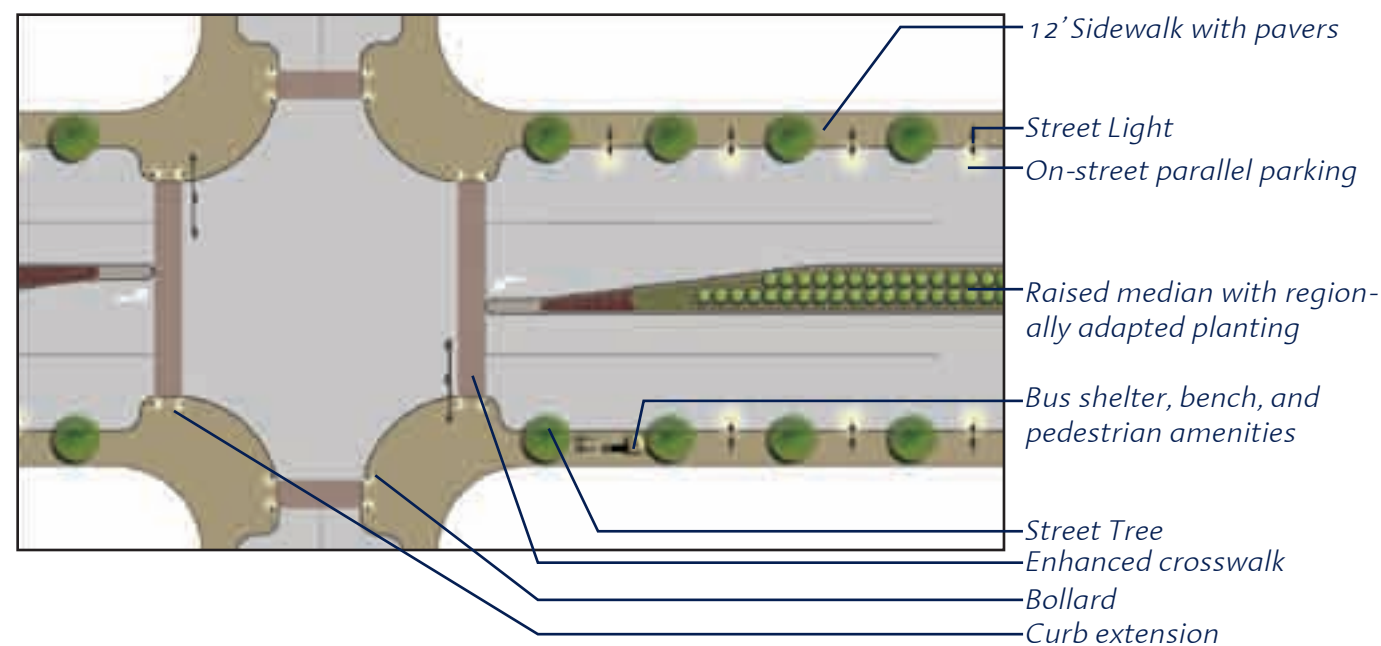


Total Cost: \$4,495,000 - \$5,124,000/mile of ROW

L&A Cost: \$1,323,000 - \$1,443,000/mile

**FIGURE 47 - FOUR LANE DOWNTOWN HIGHWAY**

Softscape Types - **Regionally Adapted**  
Structures and Hardscape Type - **Focal**

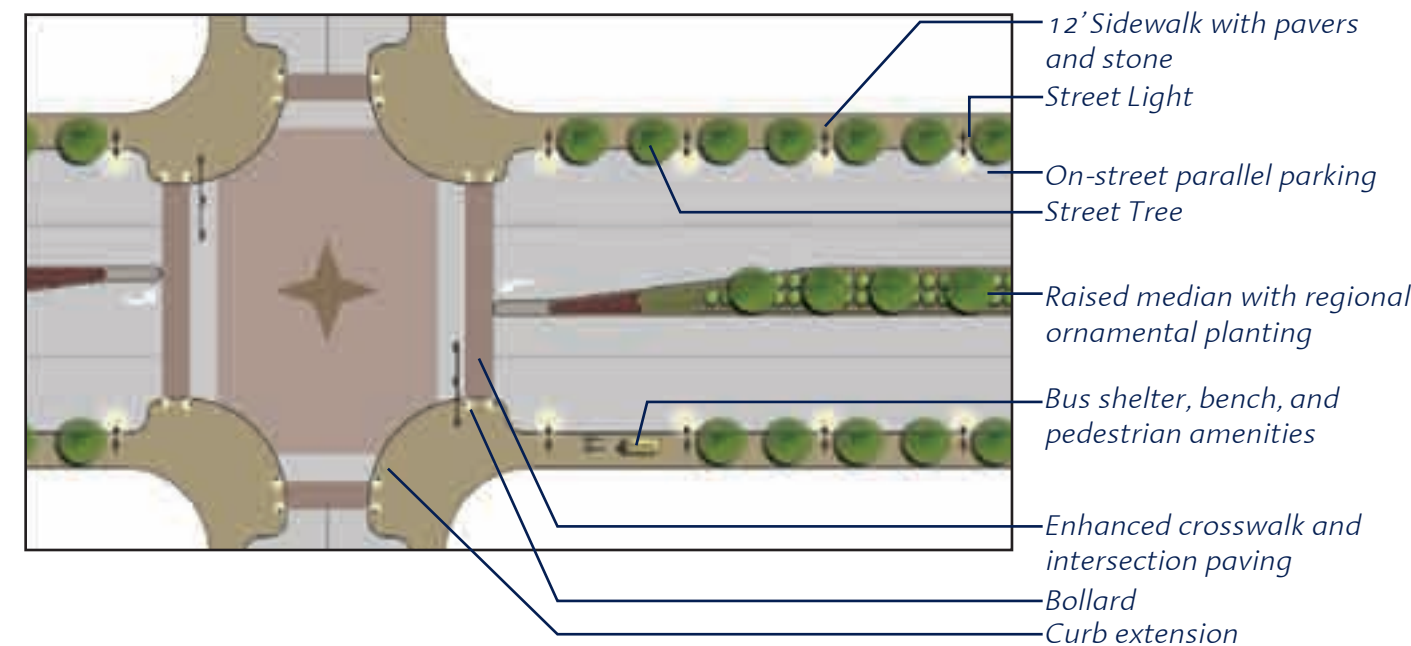


Total Cost: \$5,022,000 - \$6,873,000/mile of ROW

L&A Cost: \$1,850,000 - \$3,192,000/mile

**FIGURE 48 - FOUR LANE DOWNTOWN HIGHWAY**

Softscape Types - **Regional Ornamental**  
Structures and Hardscape Type - **Landmark**

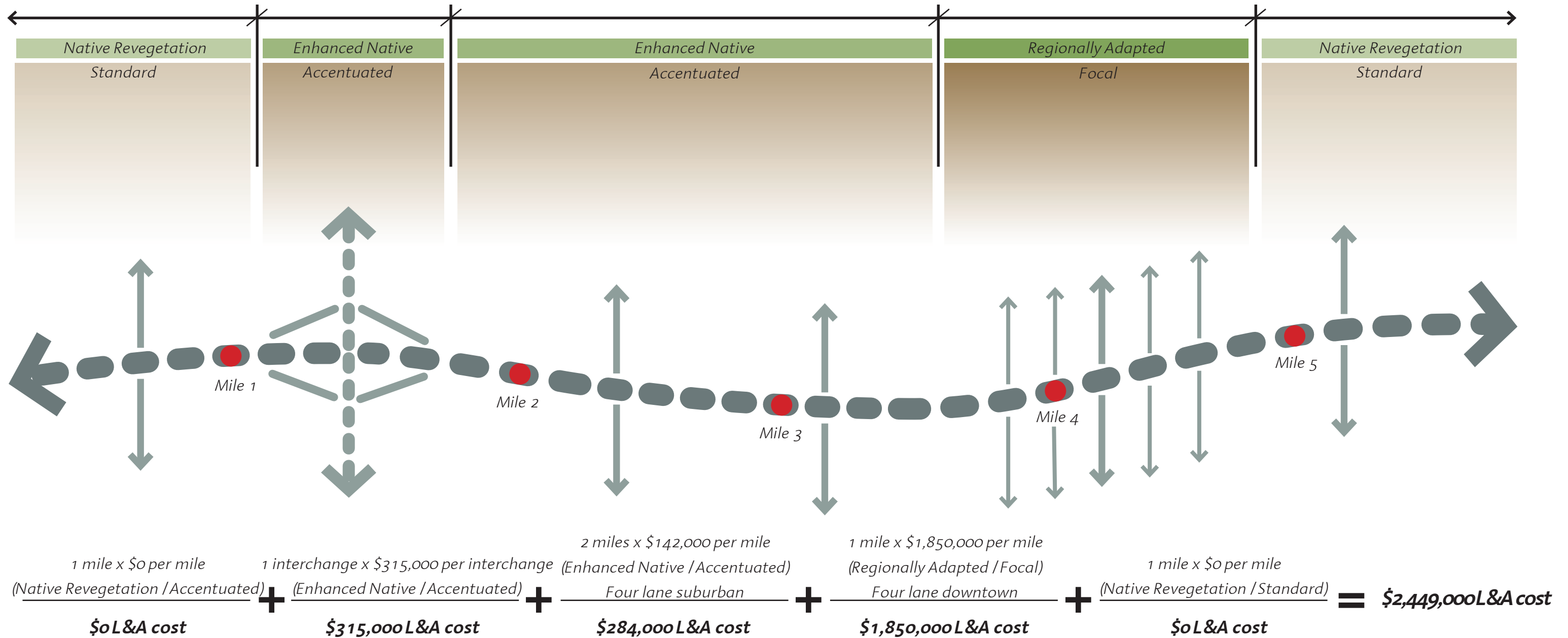


Total Cost: \$6,319,000 - \$9,437,000/mile of ROW

L&A Cost: \$3,147,000 - \$5,756,000/mile

The diagram below shows how the cost estimate information can be used to determine a planning level estimate of the landscape and aesthetics costs for this hypothetical seven-mile section of highway corridor. The costs shown are for landscape and aesthetic enhancements that are above the defined NDOT standard.

Figure 49 - Planning Level Cost Estimate



MAINTENANCE COSTS

The Corridor Plan identifies the level of landscape and aesthetic treatment, and the maintenance investment. Therefore, it is important that maintenance cost data be incorporated in the Corridor Plan. Furthermore, local public agencies and others will be interested in maintenance expenses to help navigate the long-term maintenance implications of retrofit projects.

In collaboration with the Corridor Plan, long-term maintenance costs have been researched by UNLV and compiled as the *Maintenance Cost Study for Corridor Planning*. Figure 50 diagrams how total life-cycle maintenance costs were developed for the different landscape and aesthetic treatments. Figure 51 shows the maintenance costs that were determined for the various combinations of softscape and hardscape types. Current estimates exhibit relatively wide variations in cost due to the limited amount of data available, however further research and tracking of projects will result in more clearly defined maintenance cost estimates.

Figure 50 - Total Life Cycle Maintenance Costs

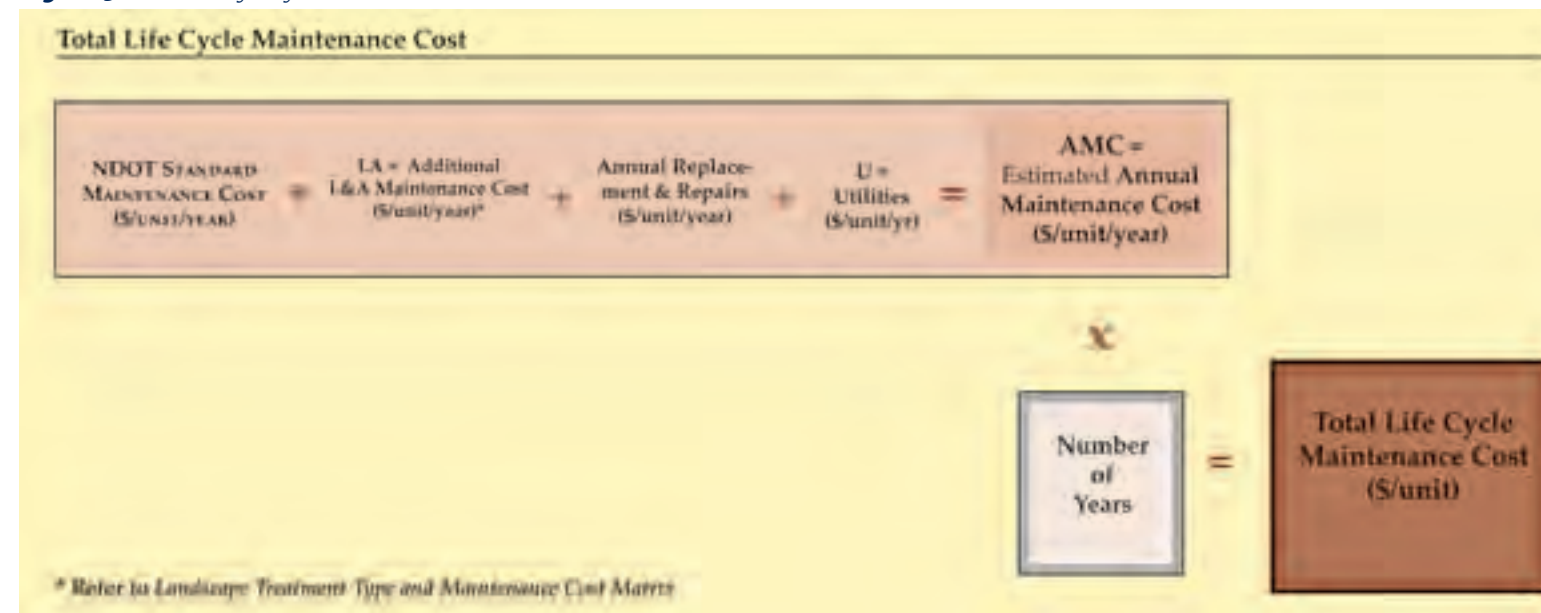


Figure 51 - Maintenance Costs for Landscape Treatment Types

Treatment Type	Hardscape				
	Standard	Accentuated	Focal	Landmark	
Softscape	<b>Ground Treatment</b>	High: \$4,655.11 Median: \$655.70 Low: \$520.00	High: \$2,383.19 Low: \$1,524.00	\$588.00 (based on one project, Cedar City)	Not Available
	<b>Native Plant Revegetation</b>	\$720.00*	\$1,676.40*	\$650.00*	Not Available*
	<b>Enhanced Native</b>	\$1,201.12 (based on one project only)	\$1,089.67 (based on one project only)	Entire Rest Area: High: \$549,200.00 Low: \$29,374.00	Welcome Center Memorial Pl. Cost not available
	<b>Regionally Adapted</b>	High: \$15,840.00 Median: \$3,116.88 Low: \$673.02	High: \$15,242.45 Median: \$5,445.00 Low: \$1,448.67	\$3,054.55 (based on one project only)	Not Available
	<b>Regional Ornamental</b>	High: \$11,775.11 Median: \$7,200.00 Low: \$433.33	High: \$8,500.00 Median: \$3,423.74 Low: \$2,279.59	\$3,005.00 (based on one project only)	\$197,846.36 (based on one project only)
	<b>Turf</b>	High: \$12,325.46 Median: \$6,057.00 Low: \$1,529.79	\$13,178.57 (based on one project only)	High: \$10,563.13 Low: \$3,135.00 (based on two projects, only)	High: \$9,214.70 Median: \$8,391.49 Low: \$3,325.82

High: Single project with highest cost  
Median: Distribution of projects between high and low cost.  
Low: Single project with lowest cost.

All entries are per acre annual costs unless otherwise noted.  
\* Natural Revegetation costs are assumed to be 10% more than Ground Treatment categories costs.

All entries are planning level estimates based on limited available data.

NOTE: Utilities and Repair & Replacement are not included in numbers.

\* Prepared by UNLV Landscape Architecture and Planning Research Office







**(1)** Partnerships with agencies such as the BLM and USFS as well as local communities and governing agencies enhance the ability to manage the corridor's scenic quality and maintain the open character along a highway.

## SECTION TWO: Implementation

### POTENTIAL FUNDING OPPORTUNITIES

Many opportunities exist to provide funding for the implementation of the corridor projects. Features described as standard will be undertaken by NDOT as new construction, capacity improvements, and replacement of facilities occurs. Upgrades to the standard landscape and aesthetic features will be considered as new highway construction occurs. Funding for new landscape and aesthetic projects associated with the state's highway program will be provided by State and Federal sources. Up to 3% of the total project construction cost may be allocated for landscape and aesthetic improvements associated with all new construction and capacity improvements.

When a landscape and aesthetics project can significantly influence an adjacent community or area, the community may choose to participate in the process. The matching funds program provides matching funds up to 50% of the cost for specific community projects. In-kind services, State, and Federal monies may be used for the community match.

Additionally, communities may request enhanced levels of landscape and aesthetic treatments. Capital cost and maintenance cost-sharing agreements with NDOT are required. Communities may also require that developers with properties located directly adjacent to the NDOT right-of-way follow the Corridor Plan recommendations to improve their areas.

Banking landscape and aesthetic project funds is encouraged. In so doing, NDOT can shift landscape and aesthetics money to priority areas needing landscape and aesthetic treatment. The capacity to re-allocate funds allows NDOT to broadly manage landscape and aesthetics on a corridor-wide basis.

Facilities such as rest area and view pull-offs will require NDOT funding. However, funding partnerships with other agencies and organizations are encouraged. Other partnership opportunities include the development of the Statewide Place Name Sign Program and Audio Interpretation Program. With these two programs promoting statewide tourism, a partnership between NDOT and Nevada Commission on Tourism (NCOT) could succeed. Private sector partners, including the Nevada Mining Association and the Nevada Ranchers Association, could also be enlisted.

A Main Street Program in Nevada could assist numerous communities in downtown beautification and economic development efforts. This program could be anchored at the state level, with an organization such as the Nevada Commission on Economic Development. Funding could be provided by community chambers of commerce or other direct sources.

Project and programs described in the Corridor Plan are outlined in Figure 52 along with opportunities for potential partnerships, suggested lead agency, and potential funding sources. Counties, cities, agencies, and other organizations should be familiar with the Corridor Plan and coordinate community plans, master plans, and other governing documents in order to provide an integrated approach towards achieving the vision and goals set forth. Active participation and review of the Corridor Plan, coordinated with a review of other community documents, will increase the potential for action and success.



Figure 52 - Potential Funding Opportunities

Projects and Programs	Lead Agency	Coordinating Agency	Possible Funding Sources
Community Gateways	Community	NDOT	Enhancement Fund, Community Match
Upgrade Downtown Streetscape	Community	NDOT	Enhancement Fund, Community Match, Landscape and Aesthetics up to 3% for new construction
Upgrade Suburban Streetscape	Community (with Developer support)	NDOT	Enhancement Fund, Community Match, Landscape and Aesthetics up to 3% for new construction
Upgrade Rural Streetscape	Community (with Developer support)	NDOT	Enhancement Fund, Community Match, Landscape and Aesthetics up to 3% for new construction
Pedestrian Crossings	NDOT	Community	Enhancement Fund, Community Match, Landscape and Aesthetics up to 3% for new construction, Developers building adjacent the ROW
Standard Sidewalk	NDOT	Community	NDOT funding
Enhanced Sidewalk	Community	NDOT	Enhancement Fund, Community Match, Landscape and Aesthetics up to 3% for new construction, Developers building adjacent the ROW
Street Trees and Planting Strips	Community	NDOT, NDF	Enhancement Fund, Community Match, Developers building adjacent the ROW, NDF plant supply
Community Lighting	Community	NDOT	Enhancement Fund, Community Match, Developers building adjacent the ROW
Community Rest Areas	Community	NDOT	Enhancement Fund, Community Match
Community Environmental Graphics	Community	NCOT	Enhancement Fund, Community Match
Statewide Gateways	NDOT	County & Communities	Enhancement Fund, NDOT funding sources
Roadside Services	NDOT	NDSP	NDOT funding sources
Statewide Place Recognition Sign Program	NDOT	NCOT	NDOT funding sources, NCOT grant
Audio Interpretation Program	NDOT	NCOT	NDOT funding sources, NCOT grant
Transportation Art	Community	NDOT	Enhancement Fund
Color Palette Retrofit of Existing Facilities	NDOT	Community	Enhancement Fund, Community Match
Non-Motorized Transportation Systems	Community	NDOT	Landscape and Aesthetics up to 3% for new construction, SAFETEA-LU
Standard Highway Facilities	NDOT		Landscape and Aesthetics up to 3% for new construction
Enhancements to Highway Facilities above what the 3% would Achieve	NDOT	Community	Enhancement Fund, Community Match, Developers building adjacent the ROW
Wildlife Crossings and Protection	NDOT	NDW	Landscape and Aesthetics up to 3% for new construction, NDW grant
Main Street Approach	Community	NDOT, Nevada Commission on Economic Development	Consortium of Communities, Nevada Commission on Economic Development grant
Native Wildflower Program	NDOT		Surface Transportation and Uniform Relocation Assistance Act, Landscape and Aesthetics up to 3% for new construction
Anti-littering Campaign	NDOT	Communities	NDOT funding
Scenic Highway Designation	NDOT		NDOT funding

## List of Acronyms

NDF – Nevada Division of Forestry

NDSP – Nevada Division of State Parks

NCOT – Nevada Commission on Tourism

NDW – Nevada Division of Wildlife

USFS – United States Forest Service

## SECTION THREE: Priorities

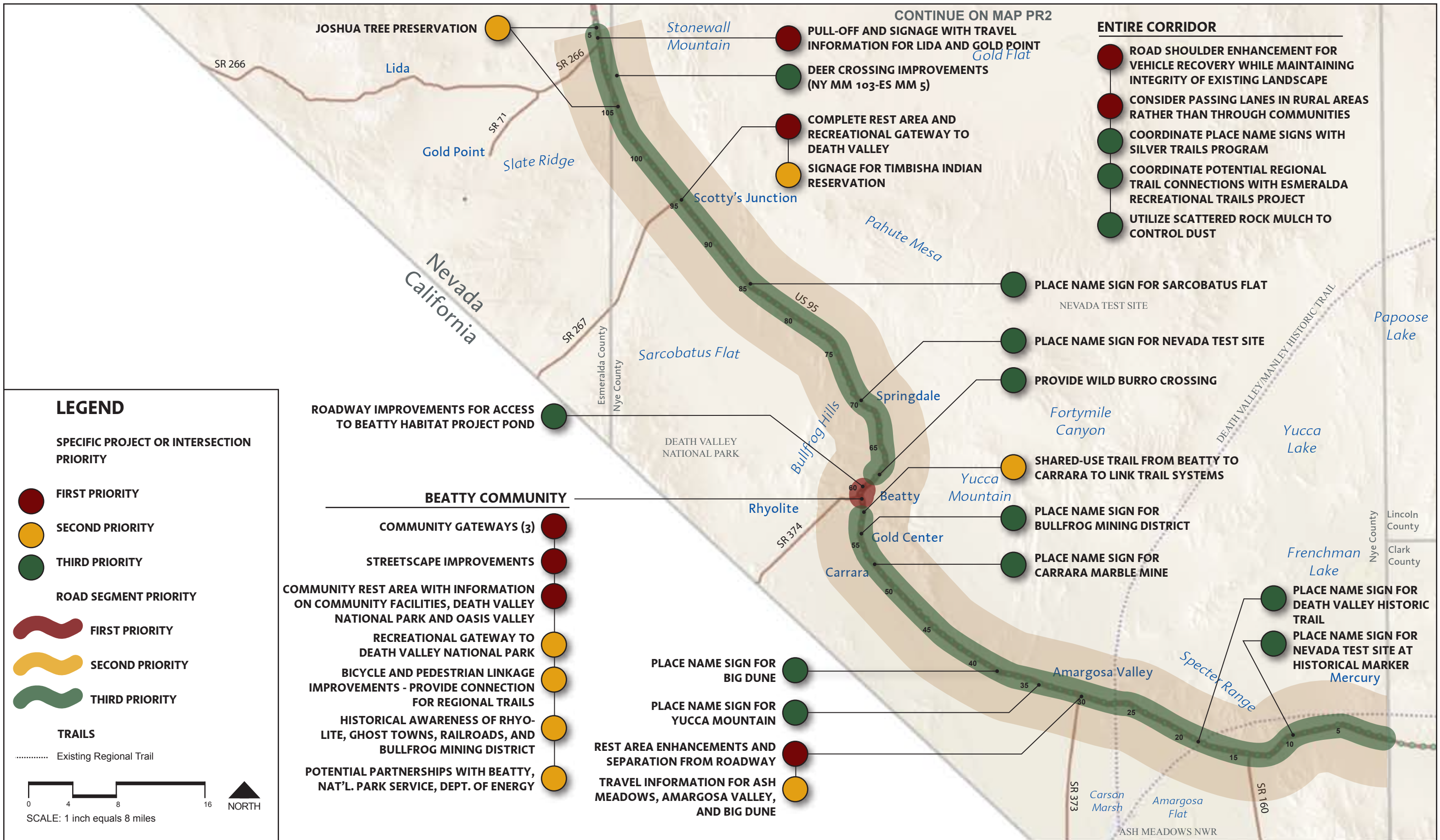
This section describes priority levels for projects within the landscape design segments. The priority levels are based on current capital improvements, as well as landscape and aesthetics planning. They are intended to act as a guide and represent those projects the Corridor Planning team recommends as having the greatest potential impact on the aesthetics of the entire corridor. The priorities identified in this chapter are subject to change according to the availability of funds for individual project improvements. Capital projects are significantly influenced by the availability of funding.

First priority is given to highly visible and identifiable projects and sections of road, areas of significant and immediate quality, and projects that are currently in progress. Second priority applies to projects that will provide additional benefits and aesthetics as part of the long range plan. Third priority goes to areas that currently display a reasonable level of aesthetic quality and, upon enhancement, will complete the landscape and aesthetics program for their particular landscape design segment. General comments received from the public and TRC members influenced the designation of priorities.

The following activities have been selected as high priorities because of the immediate and significant impact they will have on the overall aesthetics and sense of place for the entire corridor.

- Enhancing the community and highway compatibility.
- Providing flexibility for streetscape improvements within urban areas.
- Retrofitting existing rest areas (including facilities for truckers) and creating viewpoints and pulloffs.
- Partnering for visual preservation and management of Nevada's open lands.

Wildlife movement corridors are an important component of the corridor environment. Recommendations to analyze wildlife corridor movement and provide improved crossing structures are listed as medium priority due to the large capital cost. However, a few specific crossing areas are designated as first priority due to current crossing use and the importance for providing wildlife with safe and contiguous habitat connections. Community gateway establishment is noted as a second priority unless a project is underway because many communities have existing entry signage.



Central US 95, West US 6, and Central US 50 landscape and aesthetics corridor plan



# MOJAVE DESERT VISTA - PRIORITY PROJECTS

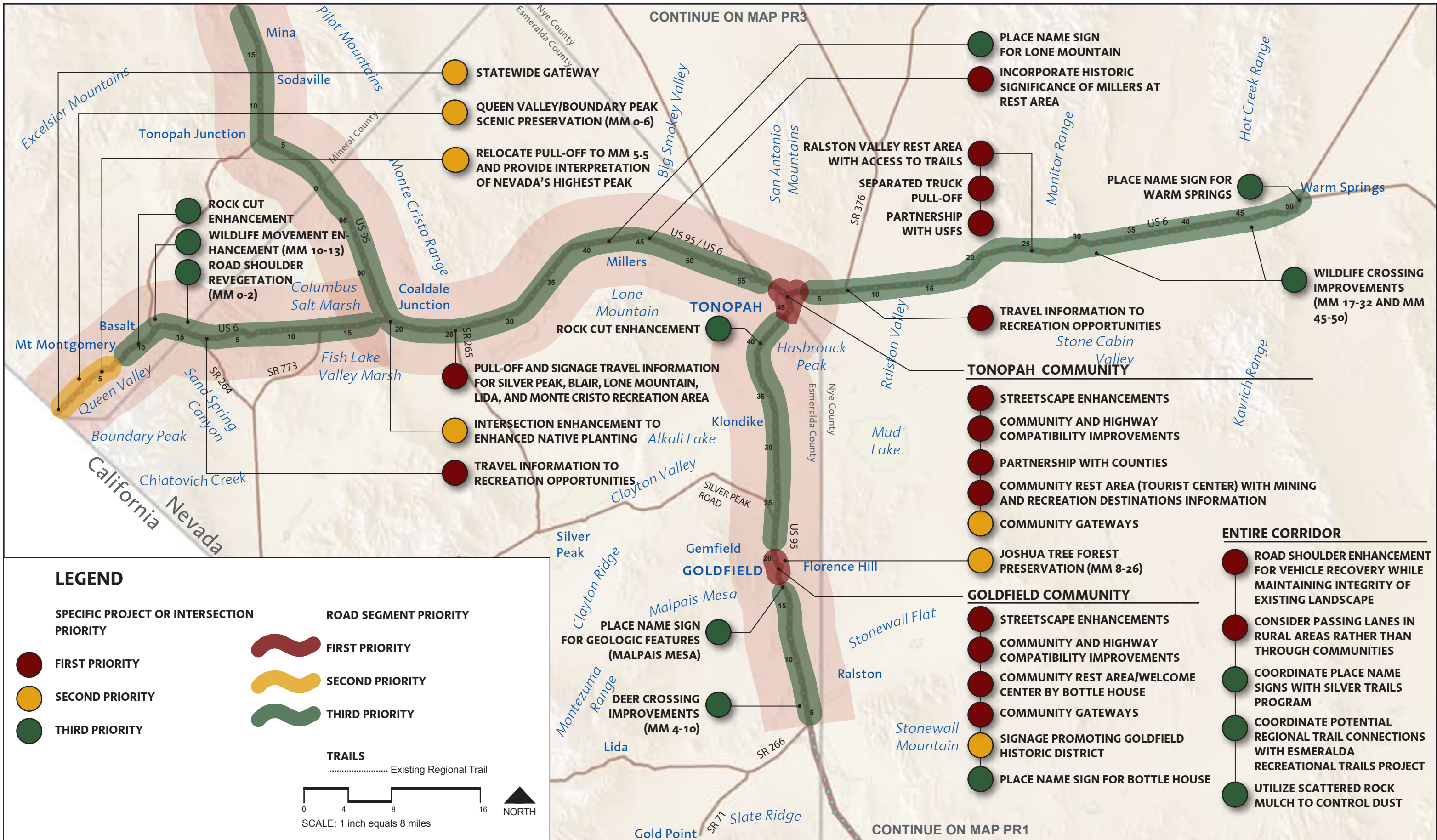
## US 95: CLARK/NYE COUNTY LINE TO ESMERALDA COUNTY MM 5

CONSULTANT TEAM

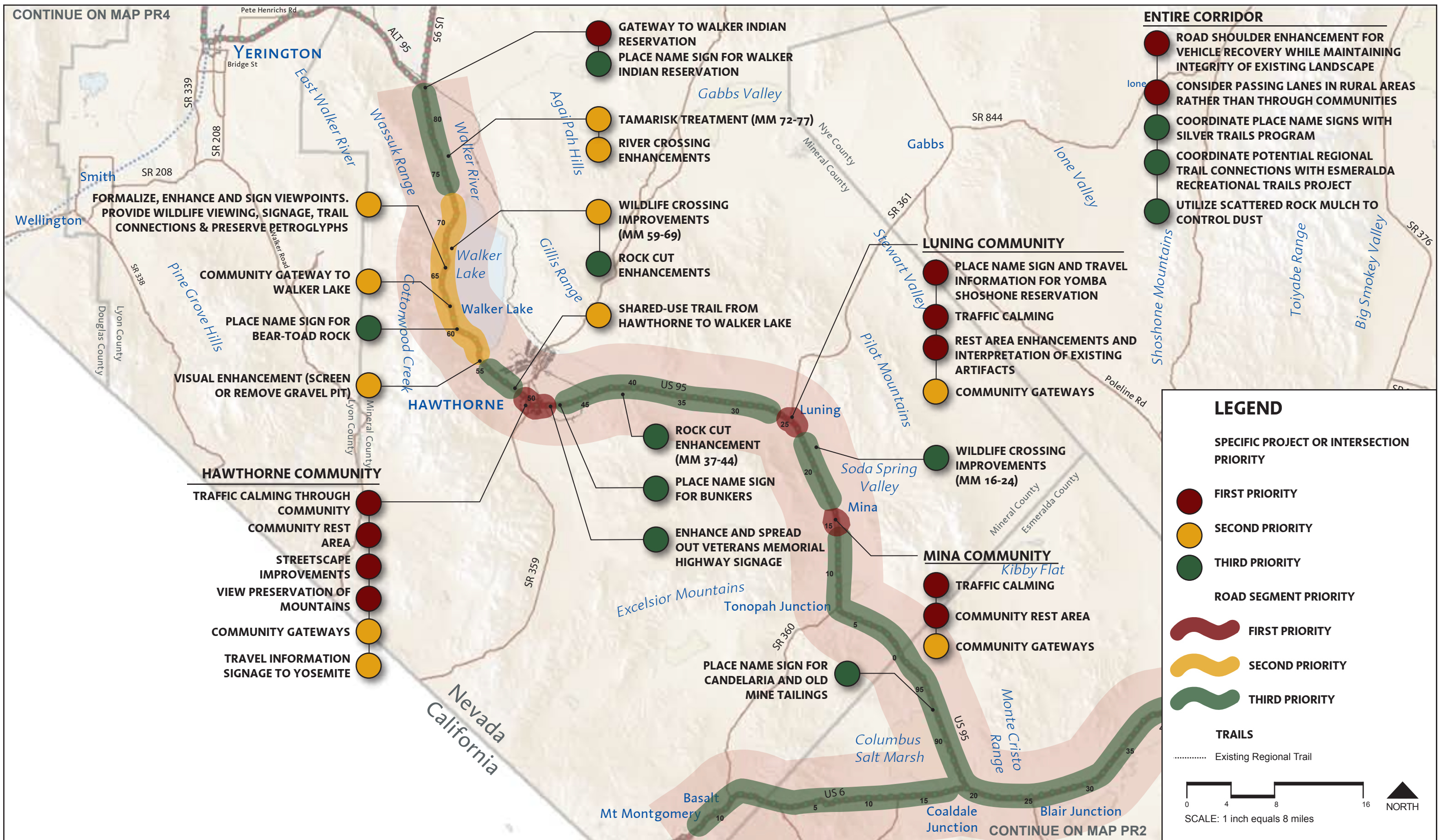
**DESIGN WORKSHOP PLACES**  
 Sand County Studios  
 JW Zunino & Associates  
 CH2MHill

**MAP PR1**  
**4.17**









Central US 95, West US 6, and Central US 50 landscape and aesthetics corridor plan

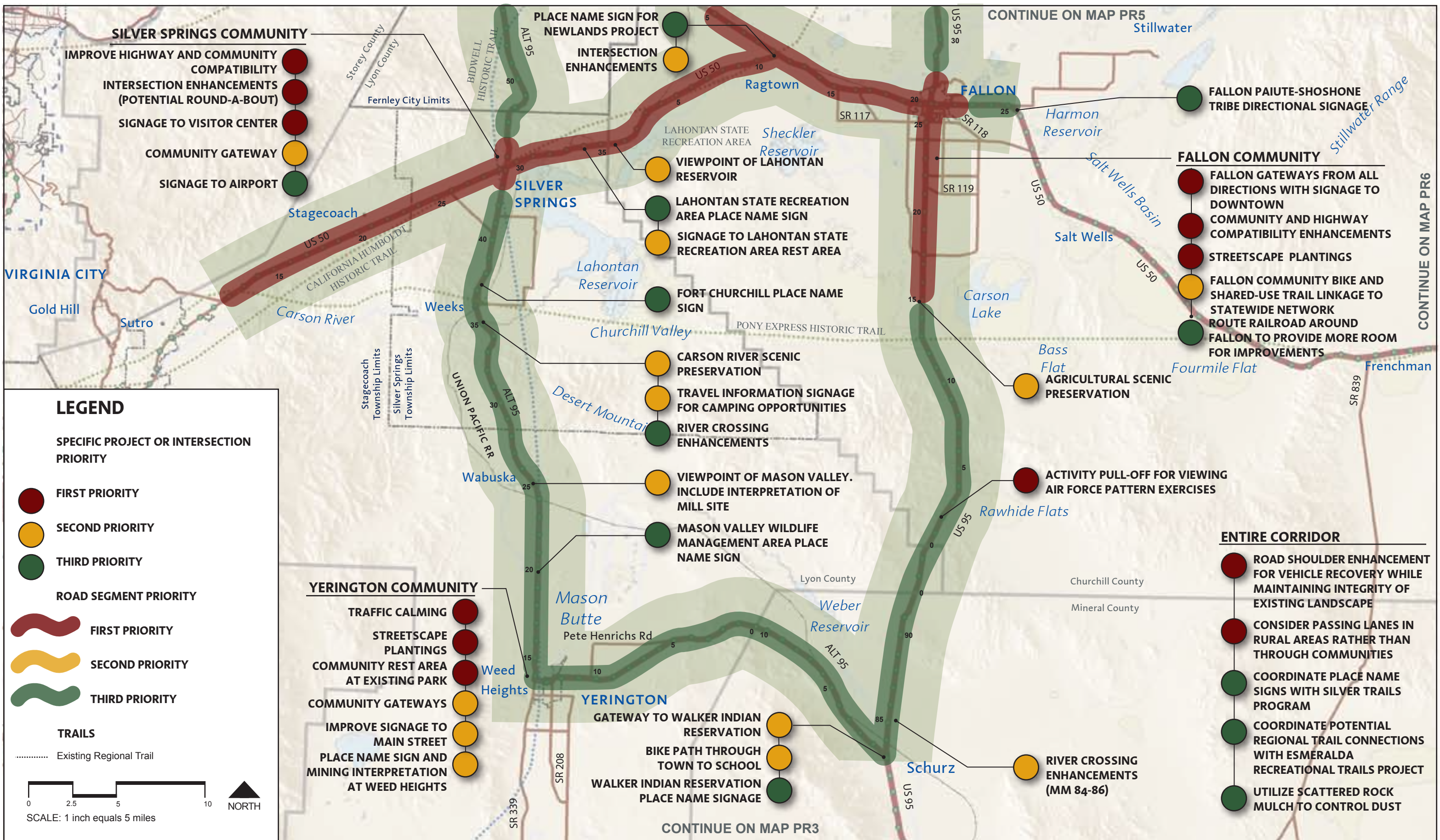
**SILVER LEGENDS - PRIORITY PROJECTS**  
**US 95: COALDALE JUNCTION TO US 95/ALT 95 INTERSECTION**



**DESIGN WORKSHOP**  
 PLACES  
 Sand County Studios  
 JW Zunino & Associates  
 CH2MHill

**MAP PR3**  
**4.19**





**SILVER SPRINGS COMMUNITY**

- IMPROVE HIGHWAY AND COMMUNITY COMPATIBILITY
- INTERSECTION ENHANCEMENTS (POTENTIAL ROUND-A-BOUT)
- SIGNAGE TO VISITOR CENTER
- COMMUNITY GATEWAY
- SIGNAGE TO AIRPORT

**PLACE NAME SIGN FOR NEWLANDS PROJECT**

**INTERSECTION ENHANCEMENTS**

- VIEWPOINT OF LAHONTAN RESERVOIR
- LAHONTAN STATE RECREATION AREA PLACE NAME SIGN
- SIGNAGE TO LAHONTAN STATE RECREATION AREA REST AREA

- LAHONTAN STATE RECREATION AREA PLACE NAME SIGN
- SIGNAGE TO LAHONTAN STATE RECREATION AREA REST AREA

- FORT CHURCHILL PLACE NAME SIGN

- CARSON RIVER SCENIC PRESERVATION

- TRAVEL INFORMATION SIGNAGE FOR CAMPING OPPORTUNITIES

- RIVER CROSSING ENHANCEMENTS

- VIEWPOINT OF MASON VALLEY. INCLUDE INTERPRETATION OF MILL SITE

- MASON VALLEY WILDLIFE MANAGEMENT AREA PLACE NAME SIGN

**YERINGTON COMMUNITY**

- TRAFFIC CALMING
- STREETSCAPE PLANTINGS
- COMMUNITY REST AREA AT EXISTING PARK
- COMMUNITY GATEWAYS
- IMPROVE SIGNAGE TO MAIN STREET
- PLACE NAME SIGN AND MINING INTERPRETATION AT WEED HEIGHTS

- GATEWAY TO WALKER INDIAN RESERVATION
- BIKE PATH THROUGH TOWN TO SCHOOL
- WALKER INDIAN RESERVATION PLACE NAME SIGNAGE

**FALLON COMMUNITY**

- FALLON GATEWAYS FROM ALL DIRECTIONS WITH SIGNAGE TO DOWNTOWN
- COMMUNITY AND HIGHWAY COMPATIBILITY ENHANCEMENTS
- STREETSCAPE PLANTINGS
- FALLON COMMUNITY BIKE AND SHARED-USE TRAIL LINKAGE TO STATEWIDE NETWORK
- ROUTE RAILROAD AROUND FALLON TO PROVIDE MORE ROOM FOR IMPROVEMENTS

- ACTIVITY PULL-OFF FOR VIEWING AIR FORCE PATTERN EXERCISES

**ENTIRE CORRIDOR**

- ROAD SHOULDER ENHANCEMENT FOR VEHICLE RECOVERY WHILE MAINTAINING INTEGRITY OF EXISTING LANDSCAPE
- CONSIDER PASSING LANES IN RURAL AREAS RATHER THAN THROUGH COMMUNITIES
- COORDINATE PLACE NAME SIGNS WITH SILVER TRAILS PROGRAM
- COORDINATE POTENTIAL REGIONAL TRAIL CONNECTIONS WITH ESMERALDA RECREATIONAL TRAILS PROJECT
- UTILIZE SCATTERED ROCK MULCH TO CONTROL DUST

**LEGEND**

**SPECIFIC PROJECT OR INTERSECTION PRIORITY**

- FIRST PRIORITY
- SECOND PRIORITY
- THIRD PRIORITY

**ROAD SEGMENT PRIORITY**

- FIRST PRIORITY
- SECOND PRIORITY
- THIRD PRIORITY

**TRAILS**

Existing Regional Trail



SCALE: 1 inch equals 5 miles

MAP PR4 4.20

DESIGN WORKSHOP PLACES Sand County Studios JW Zunino & Associates CH2MHill

CONSULTANT TEAM

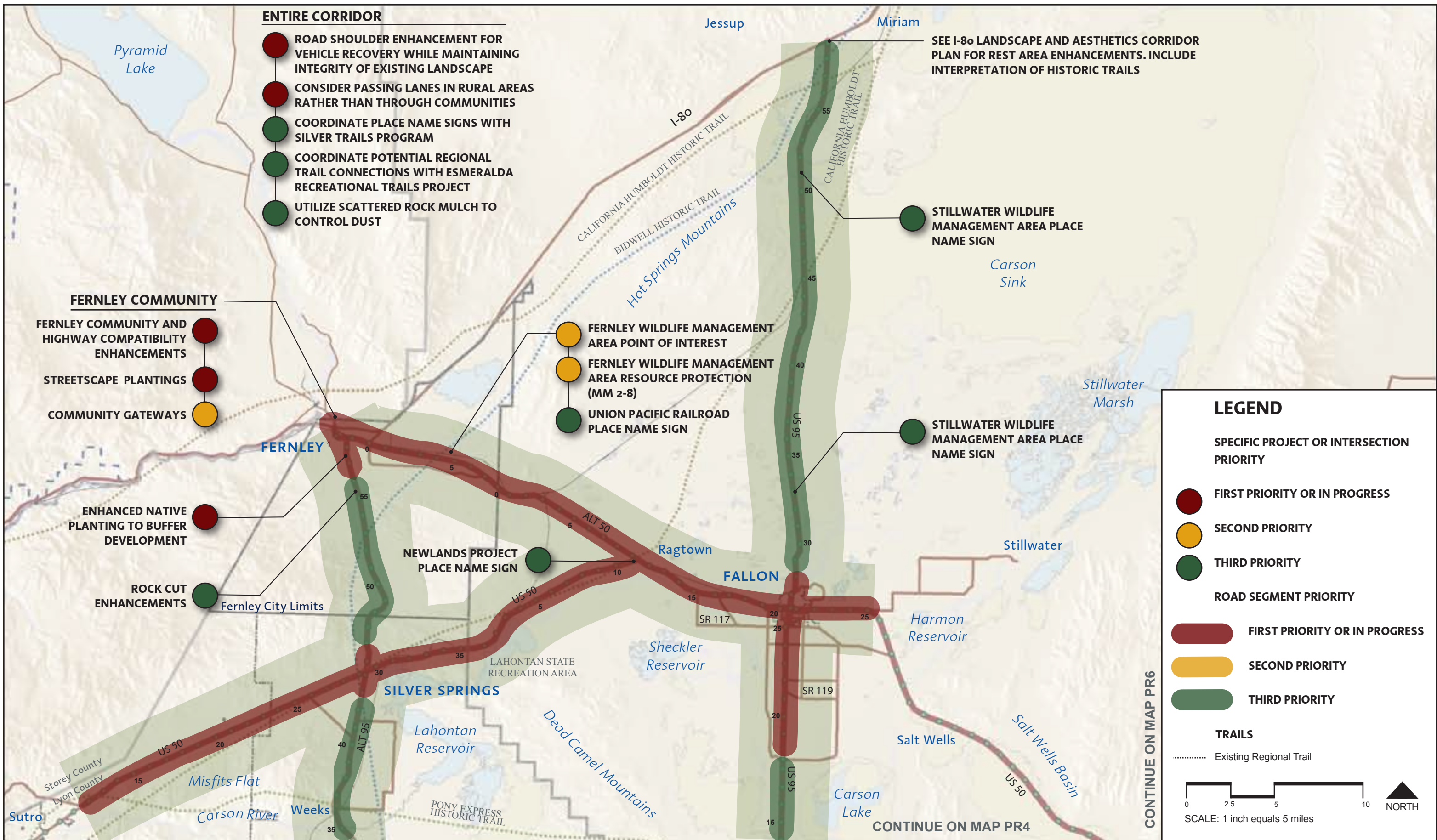
**GREAT BASIN OASIS - PRIORITY PROJECTS**

US 95: SCHURZ TO FALLON, ALT 95: SCHURZ TO SILVER SPRINGS, AND US 50

Central US 95, West US 6, and Central US 50 landscape and aesthetics corridor plan







Central US 95, West US 6, and Central US 50 landscape and aesthetics corridor plan

# GREAT BASIN OASIS - PRIORITY PROJECTS

US 95: FALLON TO I-80, US 50: DAYTON TO FALLON, ALT 95: WEEKS TO FERNLEY, AND ALT 50



**DESIGN WORKSHOP**  
 PLACES  
 Sand County Studios  
 JW Zunino & Associates  
 CH2MHill

**MAP**  
**PR5**  
**4.21**



# LEGEND

## SPECIFIC PROJECT OR INTERSECTION PRIORITY

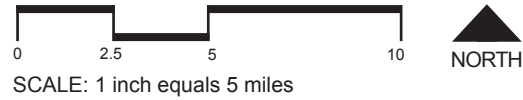
## ROAD SEGMENT PRIORITY

- FIRST PRIORITY OR IN PROGRESS
- SECOND PRIORITY
- THIRD PRIORITY

- FIRST PRIORITY OR IN PROGRESS
- SECOND PRIORITY
- THIRD PRIORITY

## TRAILS

..... Existing Regional Trail



## ENTIRE CORRIDOR

- ROAD SHOULDER ENHANCEMENT FOR VEHICLE RECOVERY WHILE MAINTAINING INTEGRITY OF EXISTING LANDSCAPE
- CONSIDER PASSING LANES IN RURAL AREAS RATHER THAN THROUGH COMMUNITIES
- COORDINATE PLACE NAME SIGNS WITH SILVER TRAILS PROGRAM
- COORDINATE POTENTIAL REGIONAL TRAIL CONNECTIONS WITH ESMERALDA RECREATIONAL TRAILS PROJECT
- UTILIZE SCATTERED ROCK MULCH TO CONTROL DUST
- VIEWPOINT OF EDWARDS CREEK VALLEY
- ROCK CUT ENHANCEMENT

