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MEMORANDUM

Date: April 26, 2021

To: Project Management Team, Project Advisory Committee, & Technical Advisory Committee

From: Matt Kittelson, PE, Julia Kuhn, PE, and Miranda Barrus

Project: Town of Lakeview Transportation System Plan Update

Subject: Final TM 5: Solutions Analysis

INTRODUCTION

This memorandum presents potential changes to the Town of Lakeview's streets and intersections based on identified existing and future transportation needs. These needs were determined through technical analyses as well as public input and Project Advisory Committee (PAC) feedback received to-date. Possible solutions to these needs have been developed in collaboration with the Town of Lakeview and the Oregon Department of Transportation (ODOT) staff and are comprised of projects, policies, programs, and studies related to:

- Street System & Safety
- Pedestrian System
- Bicycle System
- Transit System
- Rail and Air System

This memorandum also presents planning-level cost estimates and funding opportunities for the identified changes to the transportation system that could be implemented in the next twenty years.

Note that multimodal solutions proposed along ODOT highways are identified for discussion and planning purposes and for determining a planning cost estimate only. Design elements for any state facility are subject to change, will be determined through preliminary and final design processes, and are subject to future ODOT approvals.

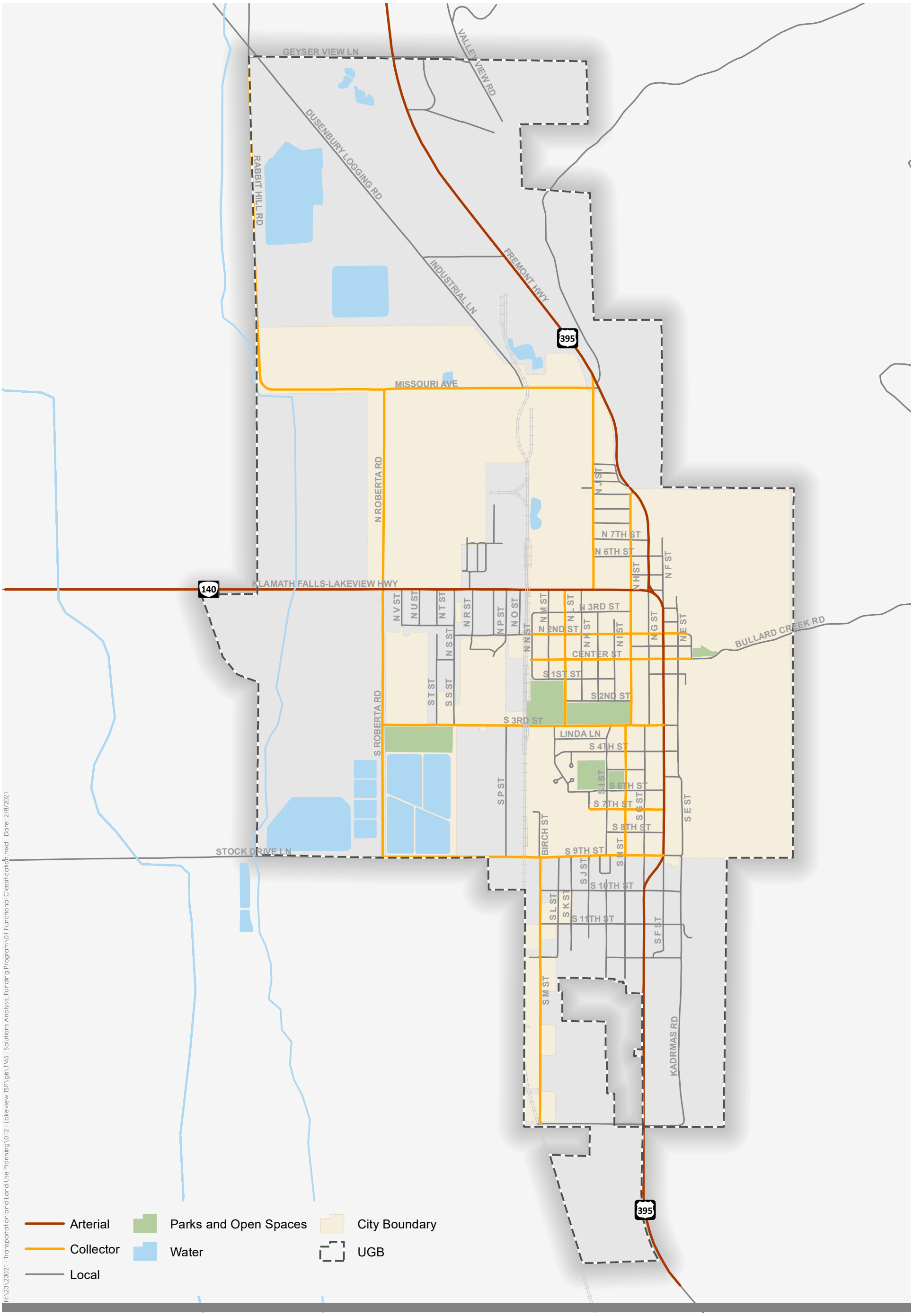
The identified projects included in this memorandum will be presented to the PAC and at an Open House in Spring 2021 to help refine the solutions for inclusion in a Draft TSP Update for the Town.

STREET SYSTEM & SAFETY

Street system and safety projects include maintaining the Town's existing functional classification system, maintaining the Town's typical street cross sections requirements, access spacing standards, freight routes, and changes to the existing intersections and streets.

FUNCTIONAL CLASSIFICATION

The Town's current functional classification establishes expectations of how streets "look and feel" for people driving, walking, and riding bikes. Today, this system provides for a well-connected grid of streets with the highways classified as arterials and Town collectors linking people driving, walking, and riding bikes within Lakeview as well as to the highways. No changes to the current designation of any streets is needed to serve the Town in the future. The functional classification system for inclusion into the TSP Update is presented in Figure 1.



H:\23\23021 - Transportation and Land Use Planning\012 - Lakeview TSP\gis\TM5 - Solutions Analysis_Funding Program\01 Functional Classification.mxd Date: 2/8/2021

Figure 1

Functional Classification System
Lakeview, Oregon

TYPICAL STREET CROSS SECTIONS

The Town's current street standards provide guidance for designing and constructing new streets as well as making changes to existing streets. These standards are organized by functional classification as well as by the land use zoning they serve, as summarized in Table 1.

Table 1: Street Standards

Functional Classification	Right-of-Way Width (ft)	Travel Lanes (ft)	Median/ Center Turn Lane (ft)	Bike Lanes (ft)	On-Street Parking (ft)	Curb (in)	Planting Strip (ft)	Sidewalks (ft)
Arterial Streets								
Arterials within the study area, which are all on the State Highway system, are subject to State highway improvement standards or guidance.								
Collector Streets								
All Zones Except DSCSD[1]	60	11	None	Shared	7	6	0-6	6
DSCSD Zone	100	10	None	Shared	17 (angled)	6	0-8	6-15
Local Streets								
Industrial, Commercial, and High Density Residential (R-3) Zones	60	11	None	Shared	7	6	0-6	6
DSCSD Zone	100	10	None	Shared	17 (angled)	6	0-8	6-15
Single-Family and Multiple Family Residential Zones	60	10	None	Shared	8 (one side)	6	0-10	6
Alleys	16-20	N/A	N/A	N/A	None	None	None	None
Accessways and Multi-Use Paths	10-18	6-10	N/A	N/A	N/A	None	None	None

[1]DSCSD: Downtown Service Core

No changes are proposed to the standards in Table 1. Like all towns and cities, not all of the streets have been constructed to these standards, particularly in the areas within the Urban Growth Boundary (UGB) but outside city limits. In most cases, pedestrian and bicycle infrastructure, such as sidewalks or clear designation of shared bicycle facilities, is lacking in areas away from the Town core. This was documented in the Needs Analysis for this TSP update. Changes to the existing streets to address the need for sidewalks and bicycle facilities will be evaluated and implemented by the Town through maintenance projects, capital projects, and partnerships with private development. In locations where topographic conditions or the built environment prevent constructing roadways to the identified standard, the Town may allow a modified cross section.

Specific corridors prioritized for adding sidewalks for people walking and facilities for people riding bikes are discussed in more detail later in this memorandum. These corridors include:

- OR 140 from the UGB to US 395
- US 395 from UGB (south) to UGB (north)
- H Street from S 9th Street to OR 140
- S I Street from S 9th Street to S 3rd Street
- Center Street from H Street to S E Street
- S 3rd Street from S T Street to US 395
- S E Street from S 9th Street to Center Street
- S 9th Street from Birch Street/S M Street to S E Street

All future changes to the state highways within the Town's UGB will be coordinated with the guidance contained in ODOT's Highway Design Manual (HDM) and the recently published ODOT *Blueprint for Urban Design*. The latter provides varying design guidelines based on roadway context, especially for infrastructure provided for people walking and biking. Further details on considerations for people walking and riding bikes along the highways are discussed below.

STREET OPERATIONS AND PRESERVATION PROGRAM

The Town of Lakeview strives to operate and maintain a street system in a state of good repair. To accomplish this, the Town will seek regular funding sources to identify and perform necessary activities, such as pavement and right-of-way maintenance on the existing street system, reconstruction of streets with failed pavement conditions, street sweeping, and snow removal and winter operations. As necessary, the Town will seek grants, agency partnerships, or other opportunities to obtain or leverage resources to complete operations or preservation needs.

ACCESS SPACING STANDARDS

Adequate access to streets, land uses, and key destinations is critical for operating and planning for an effective transportation system for all users. The following sections document existing ODOT (as of 2021) and Town standards related to access spacing.

ODOT STANDARDS

Access management spacing standards established for the state highway system within Lakeview are maintained in Oregon Administrative Rule (OAR) OAR 734-051. As development and redevelopment occurs along these highways, ODOT and the Town will work in collaboration to meet spacing standards by consolidating existing and future accesses and encouraging crossover easements where feasible.

TOWN OF LAKEVIEW STANDARDS

The Town's access management standards are summarized in Table 2. Similar to ODOT facilities, the Town will prioritize meeting spacing standards as development occurs by consolidating existing and future accesses and encouraging crossover easements where feasible. In cases where physical constraints or characteristics limit the ability to achieve these access management standards, the Town reserves the right to grant access spacing variances.

Table 2: Town Access Management Standards

Functional Classification	Spacing Between Intersections of Public Streets (Feet)	Spacing Between Private Driveways and Alleys (Feet)
Arterial	See Table	
Collector	300	100
Local	300	50

FREIGHT SYSTEM

The Oregon Highway Plan (OHP) designates OR 140 and US 395 as freight routes within Lakeview, connecting Southern and Central Oregon and California. Both state highways are classified as Reduction Review Routes, which requires that ODOT consider the needs of load restrictions and oversize-dimension load needs as part of planning, project development, development review, and maintenance.

Per ODOT, these freight routes have the following movement restrictions:

- OR 140 east of US 395 and US 395 south of OR 140 require Over-Dimension Permits for Triples Combinations or operations exceeding 14 feet in height;
- Both highways require Special Transportation Permits for continuous movement of mobile homes and modular building units over 12 feet but not exceeding 14 feet in width;
- OR 140 east of US 395 has a truck-tractor overall length limit of 65 feet; and,
- Neither highway is authorized for loads 14 feet wide with gross weight up to 98,000 pounds.

The local system is used periodically by freight, but no specific local freight routes are necessary or recommended. The freight system in Lakeview is shown in Figure 2. The Town will coordinate with ODOT and partner agencies on improvements needed to maintain and support regional and local connectivity for the movement of goods and services.

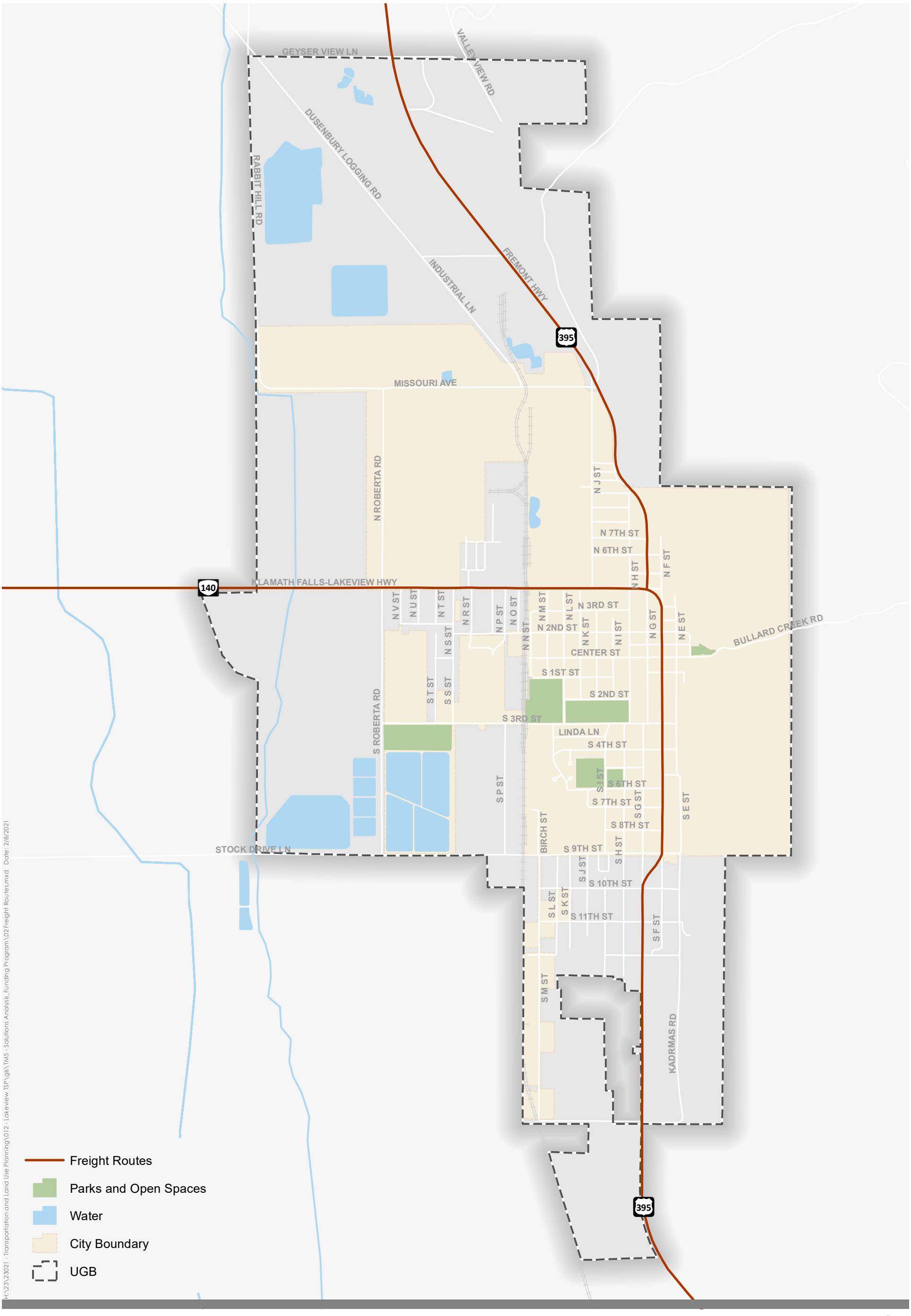


Figure 2

Freight System
Lakeview, Oregon

INTERSECTION & STREET CHANGES

As documented in the Needs Analysis, the intersections within the Town's UGB are expected to provide sufficient capacity to accommodate growth in traffic volumes through the planning horizon with their current configuration and traffic control. Therefore, no intersection capacity-based changes are recommended. There are several intersections where geometric and/or safety-based changes could benefit people driving, walking and/or riding bikes. These are listed in Table 3 and illustrated in Figure 3. Table 3 also includes planning-level cost estimates in 2021 dollars, which provides order of magnitude cost assumptions useful for project and program planning and development. Project costs will be refined through specific project development and design efforts. Additional detail on key projects is provided in the following sub-sections. The detailed planning-level cost estimate sheets are included in Attachment A.

Table 3: Proposed Intersection & Street Changes

Project ID	Project Location	Project Description	Cost Estimate
I-1	US 395 / Industrial Lane	Geometric Changes	$50,000
I-2	US 395 / Missouri Ave	Geometric Changes	$450,000
I-3	US 395 / OR 140	Geometric Changes	$550,000
I-4	US 395 / S 7th St	Emergency Service Access Monitoring	TBD
I-5	US 395 / S 9th St	Emergency Service Access Monitoring	TBD
I-6	US 395 / Kadrmas Rd	Monitor for future changes needed to support employment growth	TBD
I-7	S H St / S 3rd St	Geometric Changes (overlaps with Project C-5)	$250,000
R-1	US 395: OR 140 to UGB	Corridor Safety & Multimodal Facility Study	$150,000

TBD – To be determined when future changes are identified

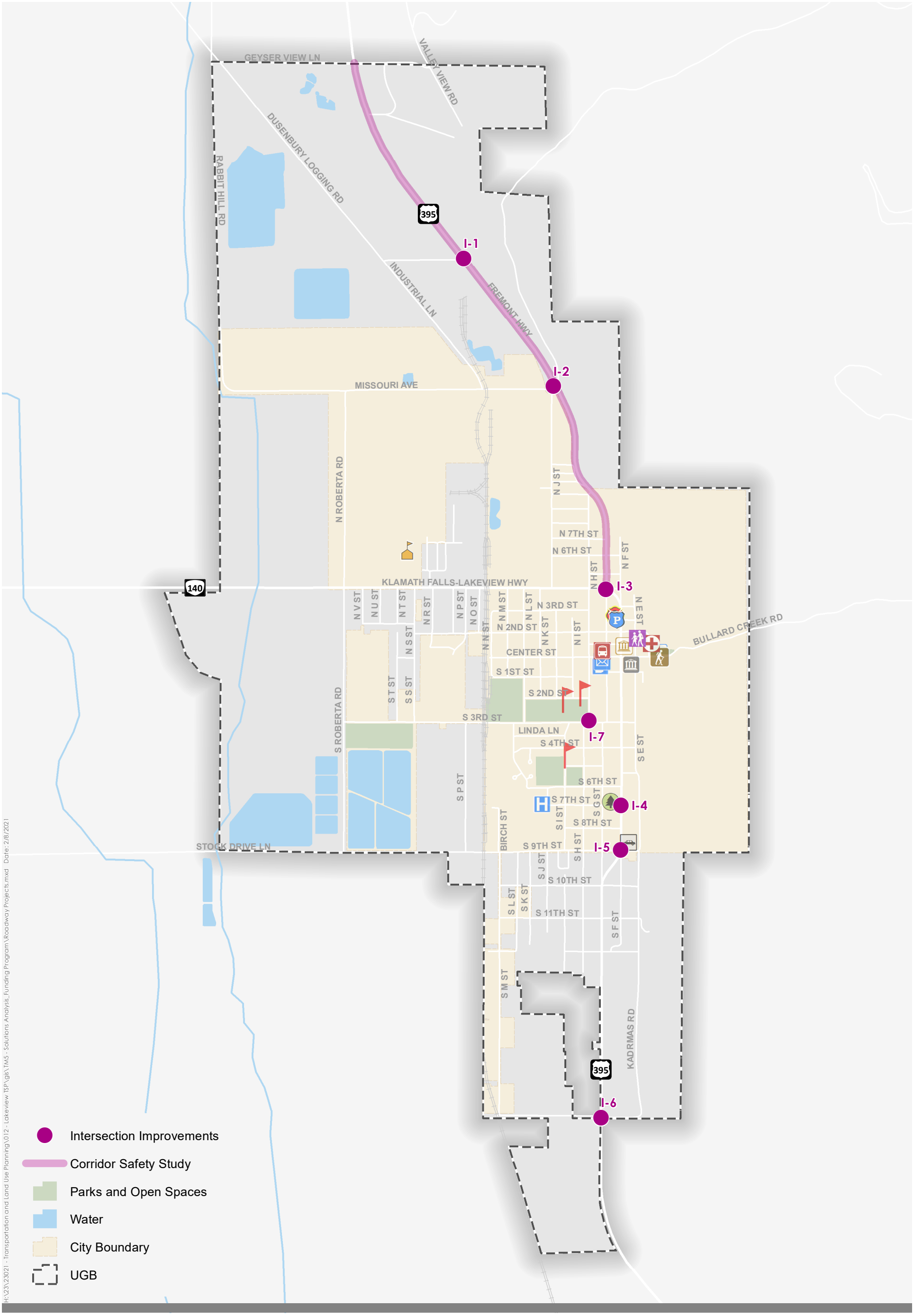


Figure 3

Intersection and Roadway Projects
Lakeview, Oregon

I-1: US 395/INDUSTRIAL LANE AND I-2: US 395/MISSOURI AVENUE INTERSECTION MODIFICATIONS

The US 395/Industrial Lane and US 395/Missouri Avenue could benefit from changes to the existing intersection geometry to reduce driver confusion, shorten crossing distances for people walking and riding bikes and more clearly communicate how people can safety navigate through the intersection. Potential changes to these intersections are illustrated in Figure 4 and Figure 5, respectively.

I-3: US 395/OR 140 INTERSECTION MODIFICATIONS

The US 395/OR 140 intersection serves as a key, central location for facilitating through movement on the highways (including freight) and connecting people between destinations within the Town. Today, the layout of the intersection has been observed to create confusion for people traveling through as it has streets that intersect, doesn't have a predictable or easily understandable traffic control, and has wide crossing distances for people walking through the intersection. To help provide better delineation of the spaces at the intersection and how to travel through it, a variety of potential changes were evaluated. The recommended changes are presented in Figure 6. Planning level cost estimates included in this memorandum are based on this configuration. Future project development will be coordinated with ODOT and further refine this concept and associated costs.

I-4: US 395 / S 7TH ST AND I-5: US 395 / S 9TH ST

S 7th Street and S 9th Street provide ingress and egress routes to the Lake District Hospital, which is west of US 395. Both intersections should be regularly maintained to provide adequate sight lines for emergency vehicles using these intersections. In addition, both should be monitored for the need to provide turn lanes, especially for left-turning vehicles on US 395 accessing the hospital.

I-6: US 395 / KADRMAS RD

Kadmras Road provides access to important economic areas of the community, including the recently approved Red Rocks Biofuel facility. The US 395/Kadrmas Road intersection should be regularly monitored for needed changes to serve this area, especially as the ingress and egress of trucks increases over time.

I-7: S H STREET/S 3RD STREET

Both S H Street and S 3rd Street provide important community connections to the Lakeview High School. The two streets intersect at two locations; the southern section of H Street intersects 3rd Street approximately 120 feet west of the intersection of the northern section of H Street with 3rd Street. Further, at the 3rd Street intersection, the northern section of H Street has a wide, sweeping right-turn movement that increases the distance for people walking and cycling long 3rd Street.

The geometric concept shown in Figure 7 reduces this turning radius and shortens crossing distances. Future refinements to this concept should confirm preferred crossing locations for users traveling along 3rd Street and along H Street, adequately accommodate the appropriate design vehicle, and provide improved illumination for all users.

R-1: US 395: NORTH OF OR 140 – CORRIDOR STUDY AND MULTIMODAL FACILITY STUDY

Following adoption of the TSP update, ODOT and the Town will work together on conducting a more refined study of potential changes to the US 395 corridor north of OR 140.

As documented in the Needs Analysis, future safety-based changes to the northern section of the US 395 corridor could address the needs of people walking, riding bikes and driving. Today, this section of the corridor is rural in

nature, transitions from a higher speed environment to the north of the UGB, and has locations where the documented crash history is higher than one would expect for similar facilities within Oregon.

A further review of the specific treatments that could be used to provide changes to this section of the highway can be addressed through a comprehensive corridor plan that provides appropriate facilities that address systemic safety along the corridor and needed multimodal facilities, including pedestrian and bicycle facilities, along the highway.

Additional Improvements:

- Intersection Ahead Warning Signs on Northbound and Southbound OR140
- Stop Ahead Warning Sign on Eastbound Industrial Lane
- Stripe fog lines, center lane, and stop bar

FIGURE 4
US 395/Industrial Lane Concept Drawing

Lakeview, Oregon

FIGURE 5

US 395/Missouri Avenue Concept Drawing

Lakeview, Oregon

FIGURE 6
US 395/OR 140 Concept Drawing

Lakeview, Oregon

FIGURE 7
H Street/3rd Street Concept Drawing

Lakeview, Oregon

SCHOOL CIRCULATION

Improved circulation around schools in Town has been identified as a need by Town staff and the public, particularly for the Arthur D Hay and Fremont elementary schools. Circulation includes the interaction between school buses and vehicles during drop-off and pick-up times and students walking, rolling, and/or biking to and from school. To improve traffic flow of all modes into and out of the school zones during peak times, the Town should work with Lakeview High School and Arthur D Hay and Fremont elementary schools to develop circulation plans that best define where each mode should be and the routes that they should travel. This may include features such as signage and striping, enhanced crossings, delineation techniques, refined or relocated bus drop-off/pick-up locations, etc.

SYSTEMIC SAFETY TOOLBOX

This section presents recommended systemic engineering countermeasures that can often be applied on a wide-scale for relatively low-cost. Many of these may be incorporated into ongoing maintenance activities by the Town or partner agencies to maximize cost-effectiveness. Countermeasures are presented in general groups and, where applicable, summarize the documented effectiveness of each at reducing crashes through the Crash Reduction Factor (CRF).

- **Roadway Segments Countermeasures,** which are treatments to reduce the crashes most commonly observed along roadway segments. **Pedestrian and bicycle countermeasures** are also included in this section.
- **Intersection Countermeasures**, which may be applied in a systemic fashion and for relatively low cost at intersections in the Town and urban area.

Table 4 and Table 5 summarizes the solutions that are presented in the following sections for segments and intersections, respectively, and provides the documented effectiveness of each treatment at reducing crashes through the Crash Reduction Factor (CRF), when available.

Table 4. Systemic Treatments for Roadway Segments			
Countermeasure	**Applicable Crash Types**	**Crash Reduction Factor (CRF)**	**Planning-Level Cost***
Roadway Segments			
Install Dynamic Speed Feedback Signs	All crash types	41%[1,3]	$10,000 per sign
Remove, Relocate, or Protect Fixed Objects Adjacent to Road	All crashes	38%[3]	Varies
Corridor Access Management			
Close, Consolidate, or Relocate Driveways (Access Management)	All injury crashes	Varies based on driveway density	Varies
Pedestrians & Bicyclists			
Install Pedestrian Refuge Island	Pedestrian crashes	26-31%[1,4]	$25,000
Curb Extensions	Pedestrian Crashes	37%	$20,000
Install Rectangular Rapid Flashing Beacon	Pedestrian crashes	10-56%[1]	$20,000 - $50,000
Install Pedestrian-Scale Lighting	Night-time pedestrian and bicycle crashes	42%[1,2]	$8,500 per pole
Bicycle Signage and Beacons at Pinch Points	Bicycle	N/A	$10,000

*Planning-level cost estimates were obtained from ODOT's list of approved CRFs.
Crash Reduction Factor Sources: [1] ODOT ARTS, [2] Highway Safety Manual, [3] CMF Clearinghouse, [4] NCHRP Report 841

Table 5. Systemic Treatments for Intersections			
Countermeasure	**Applicable Crash Types**	**Crash Reduction Factor (CRF)**	**Planning-Level Cost***
Two-Way Stop-Controlled Intersections (Signing, Striping, Illumination)			
Increase Intersection Warning with Signing and Striping (FHWA low-cost systemic intersection recommendations)	All	11 – 55%[1,4]	Varies ($400 per new sign; $700 per oversized sign; $1,000 per Stop Ahead legend)
Install Raised Divider on Stop Approach (Splitter Island)	All crashes	15%[1]	$7.55 per sq ft
Provide "Stop Ahead" Pavement Markings	All crash types	31%[3]	$1,000 each
Provide Flashing Beacons at Stop-Controlled Intersections	Angle crashes	5-58%[1,2]	$5,000 per mount
Install intersection lighting	Nighttime	31 – 38%[1,2]	$8,500 per pole
Intersection Geometry			
Install a Roundabout	All crash types	19-82%[1,2]	$2.5M-3M*
Increase Sight Distance	All injury crashes	11-56%[1,3]	Varies
Install Left-Turn Lanes on Major Roads at Stop-Controlled Intersections	All crash types	33-58%[1,2]	Varies

*Planning-level cost estimates were obtained from ODOT's list of approved CRFs, unless marked with an asterisk (*).
Crash Reduction Factor Sources: [1] ODOT ARTS, [2] Highway Safety Manual, [3] CMF Clearinghouse, [4] Caltrans / Intersection Implementation Plan / ODOT

ROADWAY SEGMENT COUNTERMEASURES

This section provides treatments to reduce the crashes most commonly observed along roadway segments. Pedestrian and bicycle countermeasures are also included in this section.

Install Dynamic Speed Feedback Signs

Dynamic speed feedback signs display the speed of approaching vehicles. Dynamic signs can display other information or signage that is triggered by an approaching vehicle.

Intersection or Segment	Segment
Applicable Collision Types	All collisions
Potential Collision Reduction	41%
Planning-Level Cost	$10,000

Source: FHWA

Remove, Relocate, or Protect Fixed Objects Adjacent to Road

Remove or relocate fixed objects adjacent to the roadway to increase the unpaved shoulder clear zone. Clearing or moving fixed-objects away from the roadway can reduce fixed-object crashes by providing a clear zone that gives drivers more space and time to correct their path should they leave the road.

Intersection or Segment	Segment
Applicable Collision Types	All collisions
Potential Collision Reduction	38%
Planning-Level Cost	Varies

Source: Florida Vegetation Management Association

Close, Consolidate, or Relocate Driveways (Access Management)

Access management refers to the control of entry and exit points along a roadway. Access management treatments can include closing, consolidating, or relocating driveways or restricting certain movements in and out of driveways. This treatment can enhance safety for all modes, facilitate walking and biking, reduce trip delay and congestion, and decrease vehicle conflicts.

Intersection or Segment	Segment
Applicable Collision Types	All injury crashes
Potential Collision Reduction	Varies based on driveway density
Planning-Level Cost	Varies

A raised median reduces conflict points along this roadway.

Source: FHWA

Pedestrian Refuge Island

Median refuge islands are physical crossing enhancements that allow for two-stage crossings (where people only need to cross one direction of travel at a time). This effectively shortens the crossing distance and reduces exposure to vehicles. Median refuge islands are most suitable for locations where pedestrians must cross three or more vehicle travel lanes (but may also be considered in other locations, space permitting). Medians may also support speed management on high-speed roadways at uncontrolled or midblock crossing locations.

Intersection or Segment	Intersection/Segment
Applicable Collision Types	26 – 31%
Potential Collision Reduction	37%
Planning-Level Cost	$25,000

Source: New York City DOT

Curb Extensions

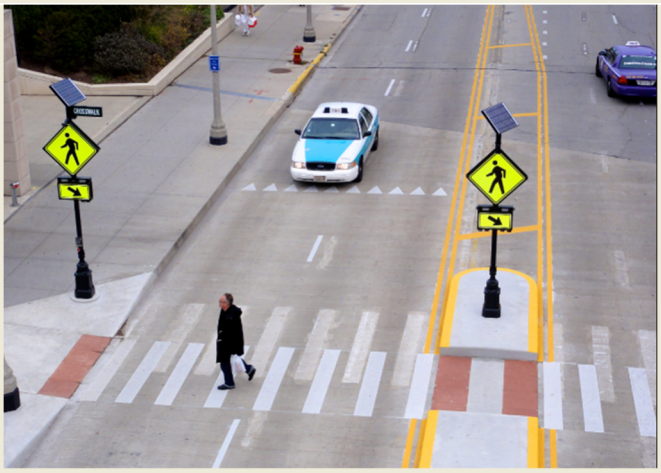
Curb extensions visually and physically narrow the roadway at pedestrian crossing locations and provide additional space to wait at street corners while reducing crossing distances for pedestrians. Curb extensions increase visibility of pedestrians by bringing the crossing further into the roadway. This is especially beneficial with the presence of on-street parking at the approach to the crossing. Curb extensions can also serve as transit stop locations to support bus priority in not leaving the traffic stream.

Intersection or Segment	Intersection/Segment
Applicable Collision Types	Pedestrian Collisions
Potential Collision Reduction	37%
Planning-Level Cost	$20,000

Rectangular Rapid Flashing Beacon (RRFB)

Rectangular rapid-flashing beacons (RRFBs) are pedestrian-actuated warning signs supplemented with high-visibility LED lights. When activated, RRFBs flash a high-visibility strobe-like light warning drivers when pedestrians are crossing. RRFBs have shown to reduce pedestrian collisions by up to 47%. RRFBs should be used in locations with high pedestrian safety issues as over-use may diminish their effectiveness. Installing median pedestrian islands with RRFBs can also reduce crashes at pedestrian crossings with more than two lanes.

Intersection or Segment	Segment
Applicable Collision Types	Pedestrian Collisions
Potential Collision Reduction	10 – 56%
Planning-Level Cost	$20,000 - $50,000

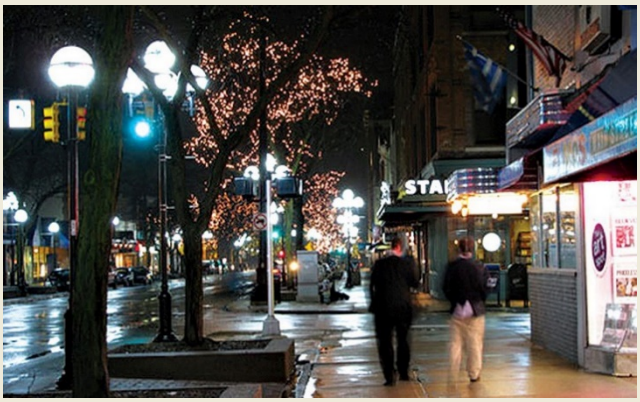


Source: FHWA

Pedestrian-Scale Lighting

Pedestrian-scale lighting is lower to the ground and more closely spaced than street or intersection lighting. Pedestrian-scale lighting illuminates sidewalks, increases perception of personal security and comfort for pedestrians, and increase driver awareness and visibility of pedestrians.

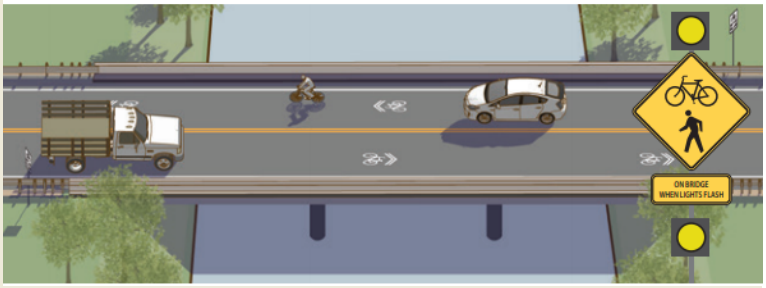
Intersection or Segment	Intersection/segment
Applicable Collision Types	Nighttime Pedestrian and Bicycle Collisions
Potential Collision Reduction	42%
Planning-Level Cost	$8,500 per pole



Install Bicycle Signage and Beacons at Pinch Points

At locations with physical constraints, such as bridges and tunnels, active warning beacons, signage, and pavement markings may be used to alert drivers that bicyclists are on the roadway. It may be appropriate to reduce vehicle speeds through reduced posted or advisory speed limits and traffic calming measures to increase bicyclist comfort.

Intersection or Segment	Segment
Applicable Collision Types	Bicycle Collisions
Potential Collision Reduction	Not available
Planning-Level Cost	$10,000



Source: FHWA Small Town and Rural Multimodal Networks

INTERSECTION COUNTERMEASURES

This section summarizes the countermeasures that are applicable at intersections. Many of these can be applied in a systemic fashion for relatively low cost at intersections within the Town and urban area.

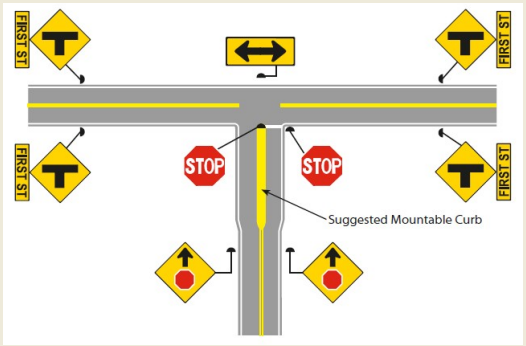
Increase Intersection Warning with Signing and Striping

Implementing a package of low-cost treatments can be used to increase intersection warning and improve safety performance at unsignalized intersections. The improvements may include:

- doubled (left and right) oversize warning signs,
- doubled STOP signs,
- a raised splitter island on the stop approach (if feasible),
- street name signs,
- stop bars,
- removing any limitations to sight distance, and
- double warning arrow at the stem of T-Intersections.

This set of enhancements combines multiple treatments to make the approach of two-way stop-controlled intersections more visible to the driver and increase awareness and visibility of potential conflicts. These treatments can help slow approaching vehicles and increase stop compliance on the controlled approaches. The Town should determine which treatments are appropriate at the individual locations where they are applied; some of the treatment options may not be applicable at every location.

Intersection or Segment	Intersection (Unsignalized)
Applicable Collision Types	All collisions
Potential Collision Reduction	11-55%
Planning-Level Cost	Varies: $400 per new sign; $700 per oversized sign; $1,000 per Stop Ahead legend



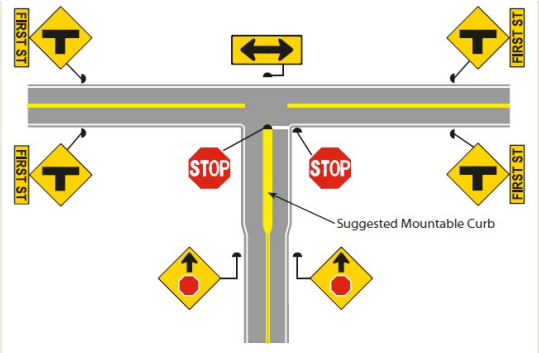
Source: FHWA

* FHWA, "Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections," (2014)

Install Raised Divider on Stop Approach (Splitter Island)

Installing a raised divider (with mountable curb) on a stop-controlled approach to an intersection can increase intersection visibility by adding a left-side stop sign and better delineate vehicle paths at the intersection. Where possible, a minimum width of 6-feet should be used for the splitter island.

Intersection or Segment	Intersection (Unsignalized)
Applicable Collision Types	All collisions
Potential Collision Reduction	15%
Planning-Level Cost	$7.55 per sq ft



Source: FHWA

* FHWA, "Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections," (2014)

Provide "Stop Ahead" Pavement Markings

Stop ahead pavement markings are used to alert drivers of the presence of an intersection and that stopping is required. These markings provide a supplementary message and should be used in conjunction with additional regulatory warning and stops signs.

Intersection or Segment	Intersection (Unsignalized)
Applicable Collision Types	All collisions
Potential Collision Reduction	31%
Planning-Level Cost	$1,000 each

Source: FHWA

Provide Flashing Beacons at Stop-Controlled Intersections

Flashing beacons can be placed above stop-signs, as well as above stop-ahead warning signs, to raise intersection visibility and awareness. Flashing beacons may flash continuously or be actuated when a vehicle approaches the intersection. This treatment may help reduce angle collisions at intersections where driver awareness of the approaching intersection is a challenge.

Intersection or Segment	Intersection (Unsignalized)
Applicable Collision Types	Angle collisions
Potential Collision Reduction	5-58%
Planning-Level Cost	$5,000 per mount

Source: FHWA

* FHWA, "Safety Evaluation of Flashing Beacons at Stop-Controlled Intersections," (2008) https://www.fhwa.dot.gov/publications/research/safety/08048/index.cfm

Intersection Lighting

Adding intersection lighting for signalized and non-signalized intersections helps improve the visibility of the intersection and potential conflicts. Intersection illumination, including pedestrian crossings, helps illuminate crossing pedestrians for approaching motorists and assists pedestrians in navigating the crossing.

Intersection or Segment	Intersection
Applicable Collision Types	Nighttime
Potential Collision Reduction	31 – 38%
Planning-Level Cost	$8,500 per pole

Roundabouts

Roundabouts feature channelized approaches and a central island to move traffic through an intersection. At roundabouts, entering traffic yields to vehicles already circulating, leading to improved operational performance. Single-lane roundabouts are typically designed so that drivers must approach the intersection at speeds below 25 miles per hour. The approach speed can reduce the severity of crashes when compared to other intersection forms. Roundabouts can be used in place of a two-way and all-way stop controlled intersection, and potentially traffic signals depending on volume. Replacing a rural two-way stop-controlled intersection with a single-lane roundabout has been shown to reduce injury crashes as much as 87 percent.

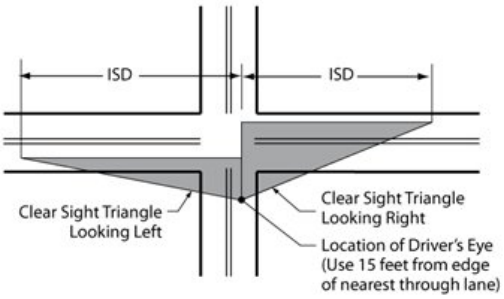
Intersection or Segment	Intersection
Applicable Collision Types	All
Potential Collision Reduction	19 – 82%
Planning-Level Cost	$2.5M - $3M

Source: FHWA

Increase Sight Distance

Increasing intersection sight distance may involve a variety of actions to increase the line of sight including clearing vegetation and embankments, relocating objects, implementing parking restrictions. By increasing intersection sight distance, drivers are provided with a greater distance to see potential conflicts and complete maneuvers to avoid potential collisions.

Intersection or Segment	Intersection (Signal and Unsignalized)
Applicable Collision Types	All injury collisions
Potential Collision Reduction	11-56%
Planning-Level Cost	Varies



Source: FHWA

** FHWA, "Intersection Safety: A Manual for Local Rural Road Owners,"*
https://www.fhwa.dot.gov/publications/research/safety/08048/index.cfm

Install Left-Turn Lanes on Major Roads at Stop Controlled Intersections

Left-turn lanes provide physical separation between turning vehicles and through traveling vehicles, thus separating the slowing vehicles from the rest of traffic and reducing the risk for rear-end crashes. Left-turn lanes allow drives to continue through the intersection without having to stop for traffic making left turns.

Intersection or Segment	Intersection (Signal and Unsignalized)
Applicable Collision Types	All collisions
Potential Collision Reduction	33-58%
Planning-Level Cost	Varies

Example of left-turn lanes.

Source: FHWA

SPEED MANAGEMENT TOOLBOX

High vehicle speeds are a common concern among community members. Excessive speed can exacerbate risks when a crash occurs, especially for bicyclists and pedestrians. As such, managing speeds is an area of continued interest for the Town. The following presents low-cost treatments for managing speeds, either by reducing the frequency of unsafe speeds by motorists and/or by clearly indicating to drivers when speeds need to be reduced to prepare for a change in roadway conditions, such as a stop-controlled intersection or curve.

For each treatment, a description is provided as well as guidance on typical application.

Dynamic Speed Displays and Vehicle-Actuated Signs / Speed Trailers

Description: Dynamic speed feedback signs display the speed of approaching vehicles. Dynamic signs can display other information or signage that is triggered by an approaching vehicle.

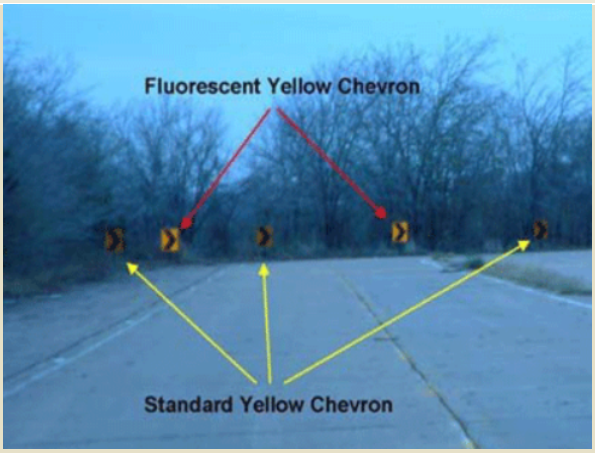
Application Guidance: Dynamic speed feedback signs on rural roadways may reduce 85th percentile speeds by 2 – 7 MPH. Typical applications include paring a dynamic speed feedback sign with a speed limit sign or curve advisory sign.

Source: FHWA

Enhanced Signing

Description: A number of enhanced signing techniques can be applied to rural roadways, including oversized and fluorescent signage. Other techniques include placing retroflected strips on existing signage, such as chevrons or curve advisory signs.

Application Guidance: Fluorescent or retroreflective sheeting on signage makes signage more visible, especially in low-light conditions. Retroreflective strips on signage may help reduce the number of vehicles exceeding the speed limit and a reduction in overall mean speed.



Source: Texas Transportation Institute

Community Gateway Signage

Description: Gateways are a type of sign or other visual cue that indicates that the motorist is entering a community or more urbanized area.

Application Guidance: Gateways may be placed overhead and completely span roadway or may simply be placed to the right of the road. Gateways are most effective when placed at transition zones into urban areas. Gateways have shown effectiveness at reducing speed in studies performed outside of the United States.

Source: Iowa State University, Speed Management Toolbox for Rural Communities

EMERGING TECHNOLOGIES

The Town of Lakeview plans to take pragmatic steps to accommodate and utilize emerging technologies that enhance and expand the effectiveness of the Town's transportation system. While specific needs and projects have not been identified, the Town plans to monitor technologies and pursue projects and partnerships that enhance livability and economic viability for Town residents, businesses, and visitors.

The following identifies initiatives, programs, or projects that may be pursued by the Town through individual actions or partnerships with supportive agencies or organizations. Additional elements not listed below may be pursued as technologies continue to evolve.

- **Electric bicycle and scooters evaluation study:** Evaluate needed updates to Town code, program feasibility, and partnership opportunities to implement or support program.
- **Electric vehicle charging station feasibility study:** Consider location, partnership opportunities (transit vehicles, partner agencies, etc.)
- **Curbside management strategies:** Evaluate drop off or curbside pickup locations within the downtown core and modifications needed to Town code.
- **Intelligent transportation systems: Use** speed feedback signs, weather reporting stations, etc., especially along the two state highways

PEDESTRIAN SYSTEM CHANGES

Facilities for people walking within the Town can provide a system to safely and efficiently transport those who are unable or choose not to drive. Sidewalks exist in all parts of Lakeview today, but primarily are provided in the denser residential and commercial areas of Town. Where available, sidewalk widths range from less than five feet on residential streets to greater than six feet in the downtown core. In locations where sidewalks are unavailable, people walking must use the roadway edge or roadway shoulder, if available. The existing sidewalk infrastructure reflects a transition between a rural environment within the County to a small town.

Although the Town's street standards require sidewalks of at least six feet for all streets (except alleys), funding the construction of sidewalks along all Town streets is not feasible through the TSP planning horizon. For this reason,

priority corridors were identified for pedestrian improvements, as shown in Figure 8. These priority corridors establish a network of sidewalks and marked crossings between schools, residences, and businesses and provide alternate parallel routes to the state highway system.

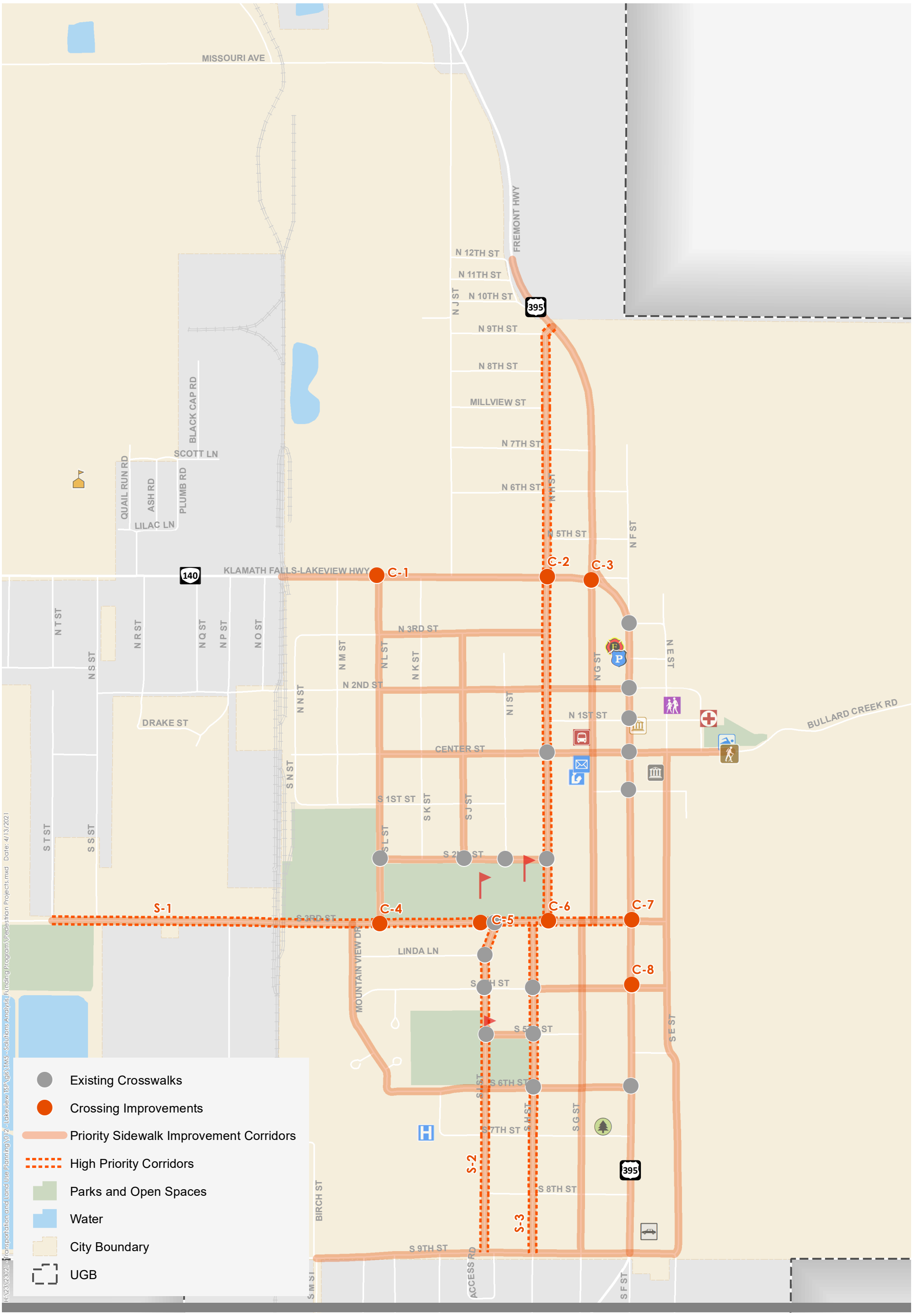
Key sidewalk infill needs to complete these priority corridors are summarized in Table 6 and Table 7. The detailed planning-level cost estimate sheets are included in Attachment A.

Table 6: Sidewalk Projects Along Priority Pedestrian Improvement Corridors

Corridor ID	Corridor Name	Sidewalk Gaps	Cost Estimate
S-1	S 3rd Street	S T Street to Mountain View Drive: Infill (Both Sides)	$950,000
		Mountainview Drive to S L Street: Infill (North Side)	$150,000
		Mountainview Drive to S H Street: Replacement (South Side)	$400,000
		S H Street to US 395: Replacement (Both Sides)	$450,000
		S-1 Subtotal:	***$1,950,000***
S-2	S I Street	S 9th Street to S 8th Street: Infill (Both Sides)	$300,000
		S 8th Street to S 6th Street: Replacement (Both Sides)	$450,000
		S 6th Street to S 5th Street: Infill (East Side)	$250,000
		S 5th Street to S 4th Street: Replacement (East Side)	$200,000
		S 4th Street to S 3rd Street: Replacement (Both Sides)	$350,000
		S-2 Subtotal:	***$1,550,000***
S-3	H Street	S 9th Street to S 3rd Street: Replacement (Both Sides)	$1,300,000
		S 3rd Street to S 2nd Street: Replacement (East Side)	$150,000
		S 2nd Street to Center Street: Replacement (Both Sides)	$450,000
		Center Street to N 2nd Street: Replacement (West Side)	$250,000
		N 2nd Street to OR 140: Replacement (Both Sides)	$450,000
		OR 140 to N 8th Street: Infill (Both Sides)	$850,000
		N 8th Street to US 395: Infill (West Side)	$250,000
		S-3 Subtotal:	***$3,700,000***

Table 7: Pedestrian Crossing Projects

Crossing ID	Location	Crossing Project	Cost Estimate
C-1	N L St / OR 140	Crossing study to determine and implement appropriate crossing treatment	$100,000
C-2	N H St / OR 140	Crossing study to determine and implement appropriate crossing treatment	$100,000
C-3	US 395 / OR 140	Crossing enhancement in conjunction with project I-3	See I-3 Estimate
C-4	S L St / S 3rd St	Crossing study to determine appropriate crossing treatment	$100,000
C-5	S 3rd St west of S I St	Crossing study to determine appropriate crossing treatment	$100,000
C-6	S H St / S 3rd St	Crossing study to determine appropriate crossing treatment. Should be coordinated with Project I-7	See I-7 Estimate
C-7	US 395 / S 3rd St	Crossing study to determine appropriate crossing treatment	$100,000
C-8	US 395 / S 4th St	Crossing study to determine appropriate crossing treatment	$100,000



TOWN OF LAKEVIEW
Est. 1876
OREGON

Figure 8

Pedestrian Projects
Lakeview, Oregon

BICYCLE SYSTEM CHANGES

Today, people riding bicycles "share the road" with motorists along most of the streets within the Town. Share-the-road biking facilities are consistent with the Town's local and collector street standards; however, most of the streets today do not provide clear wayfinding for people riding bikes. The following Town streets are proposed to be designated as local bikeways, along with US 395 and OR 140 through Lakeview, illustrated in Figure 9:

- H Street from S 9th Street to US 395
- Center Street from H Street to S E Street
- S 3rd Street from Mountain View Drive to US 395
- S E Street from S 9th Street to Center Street
- S 9th Street from Birch Street/S M Street to S E Street

While all Town local and collector streets are considered shared facilities for people biking, designating these corridors as bikeways may provide opportunities to improve the pavement condition, enhance the roadway with features such as shared lane markings and bicycle route wayfinding signage, and help to establish a bicycle network. These designated local bikeways also connect to the Oregon Scenic Bikeway that routes through the northern area of town.

Public or private opportunities to provide bicycle parking near activity centers and commercial areas, including the downtown core, should be pursued. This may include revision to the Town Development Code to require such facilities at the time of development.

On state facilities, ODOT's *Blueprint for Urban Design* provides guidance for bicycle facilities along state highways. A planning level assessment of facilities that may be provided are shown below. Further analysis and coordination with ODOT are necessary to confirm facility type and design.

- Separated Bikeways
  - OR 140: UGB to N Q Street[1]
  - US 395: UGB to S 9th Street; OR 140 to UGB
- Bike Lanes (Buffered Preferred)
  - OR 140: N Q Street to US 395
  - US 395: S 9th Street to OR 140

The *Blueprint for Urban Design* provides further guidance on what design elements could be used for separated bikeways depending on the facility context (e.g., raised islands, flexible delineator posts, concrete barrier, guardrail, bioswales, ditches, etc.). Multimodal improvements for US 395 north of OR 140 should ultimately be identified by the proposed corridor safety and multimodal facility study (project R-1).

[1] Facility type to be coordinated with proposed Corridor Study, as described previously in the memorandum

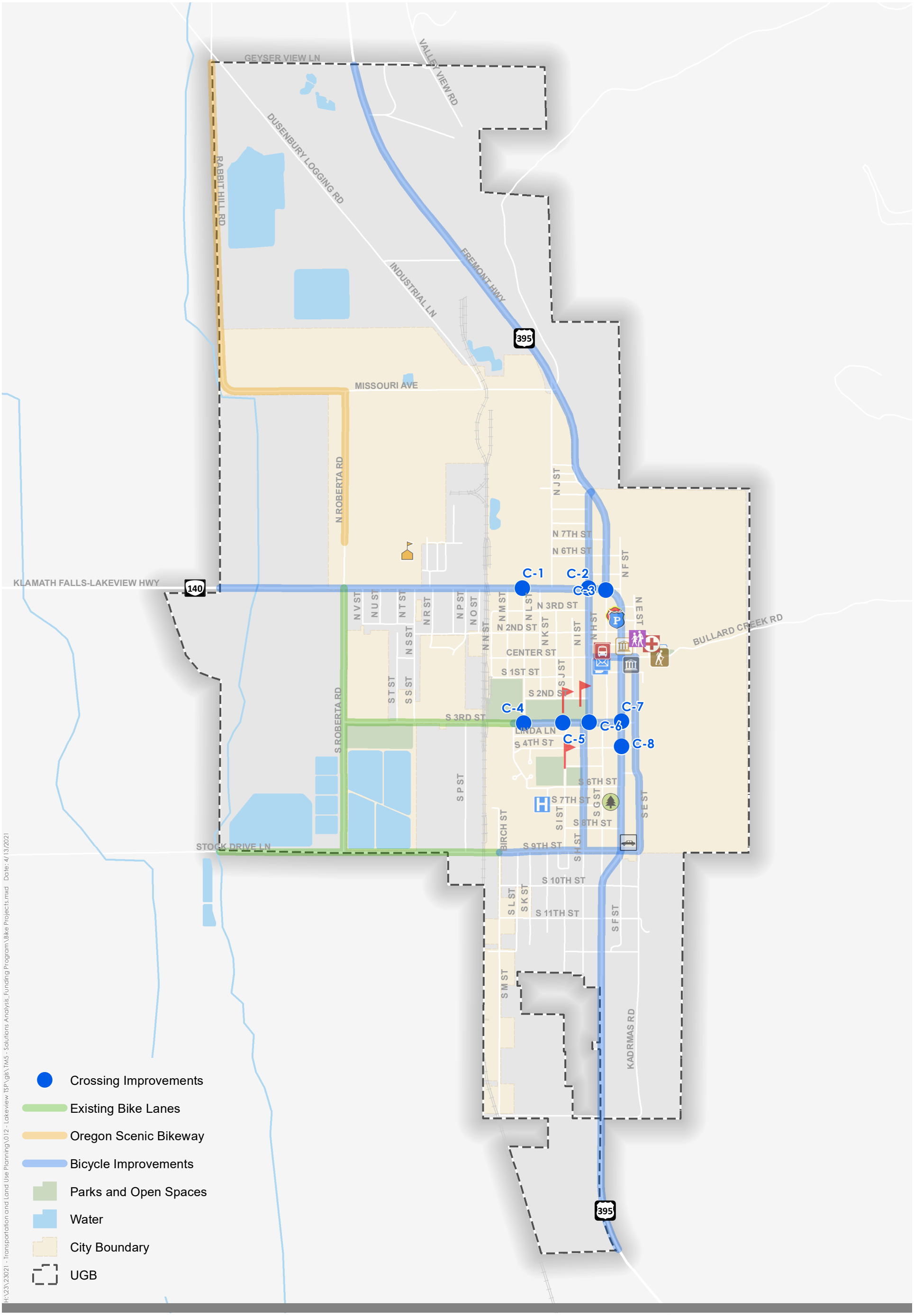


Figure 9

Bicycle Projects
Lakeview, Oregon

TRANSIT SYSTEM SOLUTIONS

Public transportation service in the Lakeview community is provided mainly by the Lake County Senior Citizens Association (LCSCA). The Inner Court Family Center (ICFC) primarily services North Lake County and serves riders coming to Lakeview. The potential for changes to these services is discussed in the 2017 "Lake County Coordinated Transit Plan" and subsequent programming documents such as the Statewide Transportation Improvement Program Plan. Specific transit needs are regularly updated and include:

- **Continuation of existing local services:** Ongoing and reliable service is key to a well-functioning transit system and maintenance of existing services is a top priority for LCSCA and ICFC
- **Improved Lakeview service.** LCSCA recently began a regular, free, and public shopping shuttle to serve Lakeview residents 'running errands'. LCSCA seeks to continue to grow this service and ensure that it becomes a valuable component of the local transportation system. Education and awareness, as described below, will be important in growing this new service.
- **Weekend service**: LCSCA and ICFC primarily operate during the day on weekdays. Little to no service is available during the evening and weekends.
- **Improved coordination.** LCSCA and ICFC continue to build coordination efforts in order to enhance service delivery for Lake County residents. The agencies are implementing coordinated dispatch which will enhance coordination; however, there are continued opportunities to coordinate marketing and service delivery.
- **Education and awareness of public transportation options**. Those who need transportation services, such as lower income populations, may not be aware of the ability to ride. Promoting these services broadly may improve knowledge of the available rides and increase ridership. LCSA and ICFC seek to overcome the misconception that services are for seniors and persons with disabled only. Additional outreach as to the availability of trips to all users may increase ridership.
- **Increase regional connections**. Improved access to Klamath Falls, Alturas, La Pine and connections to other intercity transit services, such as Sage Stage, Cascades East Transit (CET), Basin Transit Service (BTS), and Rogue Valley Transit District (RVTD).

AIR SYSTEM AND RAIL SYSTEM SOLUTIONS

AIR TRANSPORTATION

The Lake County Airport is owned and operated by Lake County and is located southwest of Town limits. The airport is classified as a Category III – Regional General Aviation Airport. Category III airports typically support most twin and single-engine aircraft and can accommodate business jet operations. They serve regional transportation needs with a large and often sparsely populated service area.

No commercial airline service is provided at the airport, though limited commercial airline service has historically been provided in Klamath Falls, which is approximately 100 miles to the west. Commercial service is not currently operating in Klamath Falls as of 2021 due to market conditions. More comprehensive service is provided in Medford and Redmond, both of which are several hours away when traveling by bus or vehicle.

Future planning at the airport is subject to the Lake County Airport Master Plan. No element of the master plan, including imagery surfaces and protected airspace, is with Town limits.

RAIL

The Lake County Railroad, operated by Goose Lake Railway LLC, provides the only rail service through Lakeview. The rail line terminates in Lakeview and runs south into California, providing rail service between the study area and

the communities of Alturas and Perez. The line is classified as a non-Class 1 railroad and only freight service. Non-Class 1 railroads provide important collector/distributor services for Class 1 railroads and also local rail services for rural shippers. This rail service has exported goods over the last century such as timber, wheat, perlite, and livestock.

Within the UGB, the rail line runs north-south, west of US 395, adjacent to south M Street, and between north O and N streets. The line crosses south 9th and 3rd streets, north 2nd Street, OR 140, and Missouri Avenue with at-grade crossings, and terminates in the area west of US 395 and south of Industrial Lane near timber mills and similar industries. The line also crosses Deadman Creek, north of south 9th Street by way of a rail bridge.

Projects to improve and maintain rail service are within Lake County's jurisdiction and included in the Lake County Transportation System Plan. No additional changes are recommended as part of the Town's TSP Update.

ATTACHMENT A – PLANNING LEVEL COST ESTIMATES

Lakeview TSP

I-1: US 395/Industrial Lane

ODOT

Engineer's Conceptual Estimate

Prepared By: JXG		*Date: March 2021*		
Reviewed By: DXH				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$3,000.00	$3,000.00
Traffic Control	LS	ALL	$2,000.00	$2,000.00
Erosion Control	LS	ALL	$0.00	$0.00
Removal of Structures and Obstructions	LS	ALL	$1,000.00	$1,000.00
Clearing and Grubbing	LS	ALL	$1,000.00	$1,000.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	3,700	$4.10	$15,170.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$6,000.00	$6,000.00
Pavement Markings, Complete	LS	ALL	$1,000.00	$1,000.00
Signage, Complete	LS	ALL	$1,000.00	$1,000.00
Illumination System, Complete	LS	ALL	$2,200.00	$2,200.00
TOTAL CONSTRUCTION COST			**$**	**32,400**
TOTAL PROJECT SUBTOTAL			**$**	**32,400**
40% Contingency			**$**	**13,000**
TOTAL ESTIMATED PROJECT COST			**$**	**45,400**

Assumptions:

- Minor realignment of industrial. Signing and striping upgrades
-
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP
I-2: US 395/J Street/Missouri Avenue
ODOT

Engineer's Conceptual Estimate

Prepared By: JXG		*Date: March 2021*		
Reviewed By: DXH				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$19,000.00	$19,000.00
Traffic Control	LS	ALL	$9,000.00	$9,000.00
Erosion Control	LS	ALL	$3,000.00	$3,000.00
Removal of Structures and Obstructions	LS	ALL	$4,000.00	$4,000.00
Clearing and Grubbing	LS	ALL	$4,000.00	$4,000.00
General Earthworks	CY	800	$25.00	$20,000.00
Asphalt Roadway - Full Depth	SF	12,250	$7.90	$96,775.00
Subgrade Geotextile	SY	1,362	$1.00	$1,400.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$42,000.00	$42,000.00
Pavement Markings, Complete	LS	ALL	$3,000.00	$3,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
TOTAL CONSTRUCTION COST				**$ 204,200**
ENGINEERING SUPPORT				
Engineering & Construction Management	LS	ALL	$103,000.00	$103,000.00
ENGINEERING SUPPORT SUBTOTAL				**$ 103,000**
TOTAL PROJECT SUBTOTAL				**$ 307,200**
40% Contingency				**$ 122,900**
TOTAL ESTIMATED PROJECT COST				**$ 430,100**

Assumptions:

- Realignment of Missouri/US 395 and Missouri/J St
- Signing/striping upgrades
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

I-3: US 395/OR 140

ODOT

Engineer's Conceptual Estimate

Prepared By: JXG		*Date: March 2021*		
Reviewed By: DXH				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$24,000.00	$24,000.00
Traffic Control	LS	ALL	$12,000.00	$12,000.00
Erosion Control	LS	ALL	$3,000.00	$3,000.00
Removal of Structures and Obstructions	LS	ALL	$11,000.00	$11,000.00
Clearing and Grubbing	LS	ALL	$5,000.00	$5,000.00
General Earthworks	CY	700	$25.00	$17,500.00
Asphalt Roadway - Full Depth	SF	3,400	$8.70	$29,600.00
Concrete Roadway - Full Depth	SF	950	$11.90	$11,300.00
Subgrade Geotextile	SY	378	$1.00	$400.00
Concrete Curbs - Mountable Curb	LF	135	$25.50	$3,400.00
Concrete Curbs - Standard Curb & Gutter	LF	920	$30.90	$28,400.00
Truck Apron (Concrete)	SF	450	$16.70	$7,500.00
Concrete Walks	SF	2,490	$7.40	$18,400.00
Detectable Warnings	EA	10	$500.00	$5,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$43,000.00	$43,000.00
Permanent Landscaping	SF	3,200	$3.70	$11,800.00
Irrigation, Complete	SF	3,200	$2.50	$8,000.00
Pavement Markings, Complete	LS	ALL	$3,000.00	$3,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
Illumination System, Complete	LS	ALL	$17,100.00	$17,100.00
TOTAL CONSTRUCTION COST				**$ 261,400**
ENGINEERING SUPPORT				
Engineering & Construction Management	LS	ALL	$131,000.00	$131,000.00
ENGINEERING SUPPORT SUBTOTAL				**$ 131,000**
TOTAL PROJECT SUBTOTAL				**$ 392,400**
40% Contingency				**$ 157,000**
TOTAL ESTIMATED PROJECT COST				**$ 549,400**

Assumptions:

- realignment. New curb at intersection. Concrete at RIRO and Asphalt for parking area
- new sidewalk along ne and nw corners
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Lakeview TSP

I-3: US 395/OR 140

ODOT

Engineer's Conceptual Estimate

Prepared By: JXG		*Date: March 2021*		
Reviewed By: DXH				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

I-7: S H Street/S 3rd Street

ODOT

Engineer's Conceptual Estimate

Prepared By: JXG		*Date: March 2021*		
Reviewed By: DXH				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$11,000.00	$11,000.00
Traffic Control	LS	ALL	$6,000.00	$6,000.00
Erosion Control	LS	ALL	$1,000.00	$1,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$2,000.00	$2,000.00
General Earthworks	CY	200	$25.00	$5,000.00
Asphalt Roadway - Grind & Inlay (2" Depth)	SF	9,000	$4.10	$36,900.00
Subgrade Geotextile	SY	0	$1.00	$0.00
Concrete Curbs - Standard Curb & Gutter	LF	300	$28.50	$8,600.00
Concrete Walks	SF	500	$7.40	$3,700.00
Detectable Warnings	EA	10	$500.00	$5,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$21,000.00	$21,000.00
Permanent Landscaping	SF	2,000	$3.70	$7,400.00
Irrigation, Complete	SF	2,000	$2.50	$5,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$1,000.00	$1,000.00
TOTAL CONSTRUCTION COST				**$ 118,600**
ENGINEERING SUPPORT				
Engineering & Construction Management	LS	ALL	$30,000.00	$30,000.00
ENGINEERING SUPPORT SUBTOTAL				**$ 30,000**
TOTAL PROJECT SUBTOTAL				**$ 148,600**
40% Contingency				**$ 59,500**
TOTAL ESTIMATED PROJECT COST				**$ 208,100**

Assumptions:

- G&I intersection, new curb at each corner
- new sidewalk on nw corner
- All crosswalks need to be upgraded
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-1(1): S 3rd St from S T St to Mountain View Dr (Sidewalk Infill - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$63,000.00	$63,000.00
Traffic Control	LS	ALL	$32,000.00	$32,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$14,000.00	$14,000.00
Clearing and Grubbing	LS	ALL	$12,000.00	$12,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	4,660	$25.50	$118,830.00
Concrete Walks	SF	27,960	$7.40	$206,904.00
Detectable Warnings	EA	6	$500.00	$3,000.00
Pedestrian Ramps	EA	6	$5,000.00	$30,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$137,000.00	$137,000.00
Pavement Markings, Complete	LS	ALL	$8,000.00	$8,000.00
Signage, Complete	LS	ALL	$6,000.00	$6,000.00
Illumination System, Complete	LS	ALL	$54,800.00	$54,800.00
TOTAL CONSTRUCTION COST			**$**	**723,034**
TOTAL PROJECT SUBTOTAL			**$**	**723,034**
30% Contingency			**$**	**216,920**
TOTAL ESTIMATED PROJECT COST			**$**	**939,954**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-1(2): S 3rd St from Mountain View Dr to S L St (Sidewalk Infill - North Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$10,000.00	$10,000.00
Traffic Control	LS	ALL	$6,000.00	$6,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$2,000.00	$2,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	225	$25.50	$5,737.50
Concrete Walks	SF	1,350	$7.40	$9,990.00
Detectable Warnings	EA	2	$500.00	$1,000.00
Pedestrian Ramps	EA	2	$5,000.00	$10,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$21,000.00	$21,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$1,000.00	$1,000.00
Illumination System, Complete	LS	ALL	$8,300.00	$8,300.00
TOTAL CONSTRUCTION COST			**$**	**117,528**
TOTAL PROJECT SUBTOTAL			**$**	**117,528**
30% Contingency			**$**	**35,260**
TOTAL ESTIMATED PROJECT COST			**$**	**152,788**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-1(3): S 3rd St from Mountain View Dr to S H St (Sidewalk Replacement - South Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$24,000.00	$24,000.00
Traffic Control	LS	ALL	$13,000.00	$13,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$6,000.00	$6,000.00
Clearing and Grubbing	LS	ALL	$5,000.00	$5,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	1,230	$25.50	$31,365.00
Concrete Walks	SF	7,380	$7.40	$54,612.00
Detectable Warnings	EA	5	$500.00	$2,500.00
Pedestrian Ramps	EA	5	$5,000.00	$25,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$52,000.00	$52,000.00
Pavement Markings, Complete	LS	ALL	$3,000.00	$3,000.00
Signage, Complete	LS	ALL	$3,000.00	$3,000.00
Illumination System, Complete	LS	ALL	$20,500.00	$20,500.00
TOTAL CONSTRUCTION COST			**$**	**277,477**
TOTAL PROJECT SUBTOTAL			**$**	**277,477**
30% Contingency			**$**	**83,250**
TOTAL ESTIMATED PROJECT COST			**$**	**360,727**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel and at all marked crossings by the high school
- Excludes sidewalk and curb ramp improvements from project I-7 (geometric improvements at S H St/S 3rd St)
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-1(4): S 3rd St from S H St to US 395 (Sidewalk Replacement - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$29,000.00	$29,000.00
Traffic Control	LS	ALL	$15,000.00	$15,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$7,000.00	$7,000.00
Clearing and Grubbing	LS	ALL	$6,000.00	$6,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	1,130	$25.50	$28,815.00
Concrete Walks	SF	6,780	$7.40	$50,172.00
Detectable Warnings	EA	12	$500.00	$6,000.00
Pedestrian Ramps	EA	12	$5,000.00	$60,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$63,000.00	$63,000.00
Pavement Markings, Complete	LS	ALL	$4,000.00	$4,000.00
Signage, Complete	LS	ALL	$3,000.00	$3,000.00
Illumination System, Complete	LS	ALL	$24,900.00	$24,900.00
TOTAL CONSTRUCTION COST			**$**	**334,387**
TOTAL PROJECT SUBTOTAL			**$**	**334,387**
30% Contingency			**$**	**100,320**
TOTAL ESTIMATED PROJECT COST			**$**	**434,707**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel along S 3rd St up to US 395 where 2 ramps are assumed at all intersection corners
- Excludes sidewalk and curb ramp improvements from project I-7 (geometric improvements at S H St/S 3rd St)
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-2(1): S I St from S 9th St to S 8th St (Sidewalk Infill - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$19,000.00	$19,000.00
Traffic Control	LS	ALL	$10,000.00	$10,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$4,000.00	$4,000.00
Clearing and Grubbing	LS	ALL	$4,000.00	$4,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	920	$25.50	$23,460.00
Concrete Walks	SF	5,520	$7.40	$40,848.00
Detectable Warnings	EA	3	$500.00	$1,500.00
Pedestrian Ramps	EA	3	$5,000.00	$15,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$40,000.00	$40,000.00
Pavement Markings, Complete	LS	ALL	$3,000.00	$3,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
Illumination System, Complete	LS	ALL	$15,900.00	$15,900.00
TOTAL CONSTRUCTION COST			**$**	**216,208**
TOTAL PROJECT SUBTOTAL			**$**	**216,208**
30% Contingency			**$**	**64,870**
TOTAL ESTIMATED PROJECT COST			**$**	**281,078**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-2(2): S I St from S 8th St to S 6th St (Sidewalk Replacement - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$30,000.00	$30,000.00
Traffic Control	LS	ALL	$16,000.00	$16,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$7,000.00	$7,000.00
Clearing and Grubbing	LS	ALL	$6,000.00	$6,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	1,660	$25.50	$42,330.00
Concrete Walks	SF	9,960	$7.40	$73,704.00
Detectable Warnings	EA	7	$500.00	$3,500.00
Pedestrian Ramps	EA	7	$5,000.00	$35,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$66,000.00	$66,000.00
Pavement Markings, Complete	LS	ALL	$4,000.00	$4,000.00
Signage, Complete	LS	ALL	$3,000.00	$3,000.00
Illumination System, Complete	LS	ALL	$26,200.00	$26,200.00
TOTAL CONSTRUCTION COST			**$**	**350,234**
TOTAL PROJECT SUBTOTAL			**$**	**350,234**
30% Contingency			**$**	**105,080**
TOTAL ESTIMATED PROJECT COST			**$**	**455,314**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-2(3): S I St from S 6th St to S 5th St (Sidewalk Infill - East Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$14,000.00	$14,000.00
Traffic Control	LS	ALL	$8,000.00	$8,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$3,000.00	$3,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	420	$25.50	$10,710.00
Concrete Walks	SF	2,520	$7.40	$18,648.00
Detectable Warnings	EA	4	$500.00	$2,000.00
Pedestrian Ramps	EA	4	$5,000.00	$20,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$30,000.00	$30,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
Illumination System, Complete	LS	ALL	$11,800.00	$11,800.00
TOTAL CONSTRUCTION COST			**$**	**162,658**
TOTAL PROJECT SUBTOTAL			**$**	**162,658**
30% Contingency			**$**	**48,800**
TOTAL ESTIMATED PROJECT COST			**$**	**211,458**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel and at all marked crossings by the elementary school
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-2(4): S I St from S 5th St to S 4th St (Sidewalk Replacement - East Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$12,000.00	$12,000.00
Traffic Control	LS	ALL	$7,000.00	$7,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$3,000.00	$3,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	350	$25.50	$8,925.00
Concrete Walks	SF	2,100	$7.40	$15,540.00
Detectable Warnings	EA	3	$500.00	$1,500.00
Pedestrian Ramps	EA	3	$5,000.00	$15,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$26,000.00	$26,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
Illumination System, Complete	LS	ALL	$10,300.00	$10,300.00
TOTAL CONSTRUCTION COST			**$**	**143,765**
TOTAL PROJECT SUBTOTAL			**$**	**143,765**
30% Contingency			**$**	**43,130**
TOTAL ESTIMATED PROJECT COST			**$**	**186,895**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel and at all marked crossings by the elementary school
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-2(5): S I St from S 4th St to S 3rd St (Sidewalk Replacement - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$22,000.00	$22,000.00
Traffic Control	LS	ALL	$12,000.00	$12,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$5,000.00	$5,000.00
Clearing and Grubbing	LS	ALL	$5,000.00	$5,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	1,050	$25.50	$26,775.00
Concrete Walks	SF	6,300	$7.40	$46,620.00
Detectable Warnings	EA	5	$500.00	$2,500.00
Pedestrian Ramps	EA	5	$5,000.00	$25,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$47,000.00	$47,000.00
Pavement Markings, Complete	LS	ALL	$3,000.00	$3,000.00
Signage, Complete	LS	ALL	$3,000.00	$3,000.00
Illumination System, Complete	LS	ALL	$18,700.00	$18,700.00
TOTAL CONSTRUCTION COST			**$**	**254,095**
TOTAL PROJECT SUBTOTAL			**$**	**254,095**
30% Contingency			**$**	**76,230**
TOTAL ESTIMATED PROJECT COST			**$**	**330,325**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
- Excludes curb ramp improvements from project P-1(3)
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(1): S H St from S 9th St to S 3rd St (Sidewalk Replacement - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$84,000.00	$84,000.00
Traffic Control	LS	ALL	$43,000.00	$43,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$19,000.00	$19,000.00
Clearing and Grubbing	LS	ALL	$17,000.00	$17,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	5,010	$25.50	$127,755.00
Concrete Walks	SF	30,060	$7.40	$222,444.00
Detectable Warnings	EA	26	$500.00	$13,000.00
Pedestrian Ramps	EA	26	$5,000.00	$130,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$184,000.00	$184,000.00
Pavement Markings, Complete	LS	ALL	$11,000.00	$11,000.00
Signage, Complete	LS	ALL	$8,000.00	$8,000.00
Illumination System, Complete	LS	ALL	$73,600.00	$73,600.00
TOTAL CONSTRUCTION COST			**$**	**970,299**
TOTAL PROJECT SUBTOTAL			**$**	**970,299**
30% Contingency			**$**	**291,090**
TOTAL ESTIMATED PROJECT COST			**$**	**1,261,389**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel and at all marked crossings by the elementary school
- Excludes sidewalk and curb ramp improvements from project I-7 (geometric improvements at S H St/S 3rd St)
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(2): S H St from S 3rd St to S 2nd St (Sidewalk Replacement - East Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$10,000.00	$10,000.00
Traffic Control	LS	ALL	$6,000.00	$6,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$2,000.00	$2,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	380	$25.50	$9,690.00
Concrete Walks	SF	2,280	$7.40	$16,872.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$21,000.00	$21,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$1,000.00	$1,000.00
Illumination System, Complete	LS	ALL	$8,300.00	$8,300.00
TOTAL CONSTRUCTION COST			**$**	**117,362**
TOTAL PROJECT SUBTOTAL			**$**	**117,362**
30% Contingency			**$**	**35,210**
TOTAL ESTIMATED PROJECT COST			**$**	**152,572**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
- Excludes sidewalk and curb ramp improvements from project I-7 (geometric improvements at S H St/S 3rd St)
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(3): S H St from S 2nd St to Center St (Sidewalk Replacement - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$29,000.00	$29,000.00
Traffic Control	LS	ALL	$15,000.00	$15,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$7,000.00	$7,000.00
Clearing and Grubbing	LS	ALL	$6,000.00	$6,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	1,650	$25.50	$42,075.00
Concrete Walks	SF	9,900	$7.40	$73,260.00
Detectable Warnings	EA	5	$500.00	$2,500.00
Pedestrian Ramps	EA	5	$5,000.00	$25,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$62,000.00	$62,000.00
Pavement Markings, Complete	LS	ALL	$4,000.00	$4,000.00
Signage, Complete	LS	ALL	$3,000.00	$3,000.00
Illumination System, Complete	LS	ALL	$24,600.00	$24,600.00
TOTAL CONSTRUCTION COST			**$**	**330,935**
TOTAL PROJECT SUBTOTAL			**$**	**330,935**
30% Contingency			**$**	**99,290**
TOTAL ESTIMATED PROJECT COST			**$**	**430,225**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel and at all marked crossings at Center St
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(4): S H St from Center St to N 2nd St (Sidewalk Replacement - West Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$14,000.00	$14,000.00
Traffic Control	LS	ALL	$8,000.00	$8,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$3,000.00	$3,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	500	$25.50	$12,750.00
Concrete Walks	SF	3,000	$7.40	$22,200.00
Detectable Warnings	EA	3	$500.00	$1,500.00
Pedestrian Ramps	EA	3	$5,000.00	$15,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$30,000.00	$30,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
Illumination System, Complete	LS	ALL	$11,800.00	$11,800.00
TOTAL CONSTRUCTION COST			**$**	**162,750**
TOTAL PROJECT SUBTOTAL			**$**	**162,750**
30% Contingency			**$**	**48,830**
TOTAL ESTIMATED PROJECT COST			**$**	**211,580**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel and at all marked crossings at Center St
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(5): S H St from N 2nd St to OR 140 (Sidewalk Replacement - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$30,000.00	$30,000.00
Traffic Control	LS	ALL	$16,000.00	$16,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$7,000.00	$7,000.00
Clearing and Grubbing	LS	ALL	$6,000.00	$6,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	1,730	$25.50	$44,115.00
Concrete Walks	SF	10,380	$7.40	$76,812.00
Detectable Warnings	EA	6	$500.00	$3,000.00
Pedestrian Ramps	EA	6	$5,000.00	$30,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$66,000.00	$66,000.00
Pavement Markings, Complete	LS	ALL	$4,000.00	$4,000.00
Signage, Complete	LS	ALL	$3,000.00	$3,000.00
Illumination System, Complete	LS	ALL	$26,100.00	$26,100.00
TOTAL CONSTRUCTION COST			**$**	**349,527**
TOTAL PROJECT SUBTOTAL			**$**	**349,527**
30% Contingency			**$**	**104,860**
TOTAL ESTIMATED PROJECT COST			**$**	**454,387**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(6): N H St from OR 140 to N 8th Street (Sidewalk Infill - Both Sides)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$56,000.00	$56,000.00
Traffic Control	LS	ALL	$29,000.00	$29,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$13,000.00	$13,000.00
Clearing and Grubbing	LS	ALL	$11,000.00	$11,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	3,200	$25.50	$81,600.00
Concrete Walks	SF	19,200	$7.40	$142,080.00
Detectable Warnings	EA	17	$500.00	$8,500.00
Pedestrian Ramps	EA	17	$5,000.00	$85,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$123,000.00	$123,000.00
Pavement Markings, Complete	LS	ALL	$7,000.00	$7,000.00
Signage, Complete	LS	ALL	$6,000.00	$6,000.00
Illumination System, Complete	LS	ALL	$49,000.00	$49,000.00
TOTAL CONSTRUCTION COST			**$**	**648,680**
TOTAL PROJECT SUBTOTAL			**$**	**648,680**
30% Contingency			**$**	**194,610**
TOTAL ESTIMATED PROJECT COST			**$**	**843,290**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel except for at OR 140 intersection - dual ramps assumed
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Lakeview TSP

S-3(7): N H St from N 8th Street to US 395 (Sidewalk Infill - West Side)

Town of Lakeview, ODOT

Engineer's Conceptual Estimate

Prepared By: MKB		*Date: March 2021*		
Reviewed By:				
	This Estimate has a Rating of:	**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
Mobilization	LS	ALL	$14,000.00	$14,000.00
Traffic Control	LS	ALL	$8,000.00	$8,000.00
Erosion Control	LS	ALL	$5,000.00	$5,000.00
Removal of Structures and Obstructions	LS	ALL	$3,000.00	$3,000.00
Clearing and Grubbing	LS	ALL	$3,000.00	$3,000.00
General Earthworks	CY	1,300	$25.00	$32,500.00
Concrete Curbs - Standard Curb	LF	360	$25.50	$9,180.00
Concrete Walks	SF	2,160	$7.40	$15,984.00
Detectable Warnings	EA	5	$500.00	$2,500.00
Pedestrian Ramps	EA	5	$5,000.00	$25,000.00
Storm Water System & Water Quality Treatment, Complete	LS	ALL	$30,000.00	$30,000.00
Pavement Markings, Complete	LS	ALL	$2,000.00	$2,000.00
Signage, Complete	LS	ALL	$2,000.00	$2,000.00
Illumination System, Complete	LS	ALL	$12,000.00	$12,000.00
TOTAL CONSTRUCTION COST			**$**	**164,164**
TOTAL PROJECT SUBTOTAL			**$**	**164,164**
30% Contingency			**$**	**49,250**
TOTAL ESTIMATED PROJECT COST			**$**	**213,414**

Assumptions:

- Assumes 6-foot sidewalk per street standards
- Assumes only curb per street standards
- Assumes 1 ADA curb ramp at each corner in the direction of travel except for at OR 140 intersection - dual ramps assumed
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.