

# Cottonwood Heights Transportation Master Plan

CITY COUNCIL– OCTOBER 17<sup>TH</sup>, 2023

# Transportation Master Plan Background

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- Primary Purpose of a TMP is to identify any projects that would be eligible for impact fees necessitated by new growth in the city.
  - Impact Fees are a way for a community to obtain funds to assist in the construction of infrastructure improvements resulting from new development and growth
- A short-term or 10-Year Transportation Capital Facilities Plan was created for Cottonwood Heights in 2019. This plan examined the city's existing transportation network, projecting traffic counts over a ten-year period.
  - Based on that study the city did not move forward with assessment of any Transportation Impact Fees.
- This 2023 Transportation Master Plan serves as a unifying document, consolidating previous transportation policy documents
  - Updates the 2019 Transportation Capital Facilities Plan to include traffic modeling up to 2050.
  - Incorporates Active Transportation Master Plans
    - Mid-Valley Active Transportation Plan & Cottonwood Heights Pedestrian Trails Master Plan
  - Incorporates other City Master Plan Documents
    - Fort Union Boulevard Mater Plan & Wasatch Blvd – Gravel Pit Master Plan

# Goals of the Transportation Master Plan

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- Improve Cottonwood Heights Transportation Planning Process based on community identified mobility goals.
  - Improve existing active transportation network to promote alternative transportation use.
  - Identify future projects that will improve pedestrian safety, walkability, and traffic flow.
  - Identify solutions to accommodate future growth, road safety, and road classification
- Consolidate various transportation policy documents under one integrated plan.
- Standardize Typical Roadway Cross-Sections for different road classifications.
- Develop a Transportation Model to anticipate roadway level of service up to 2050.

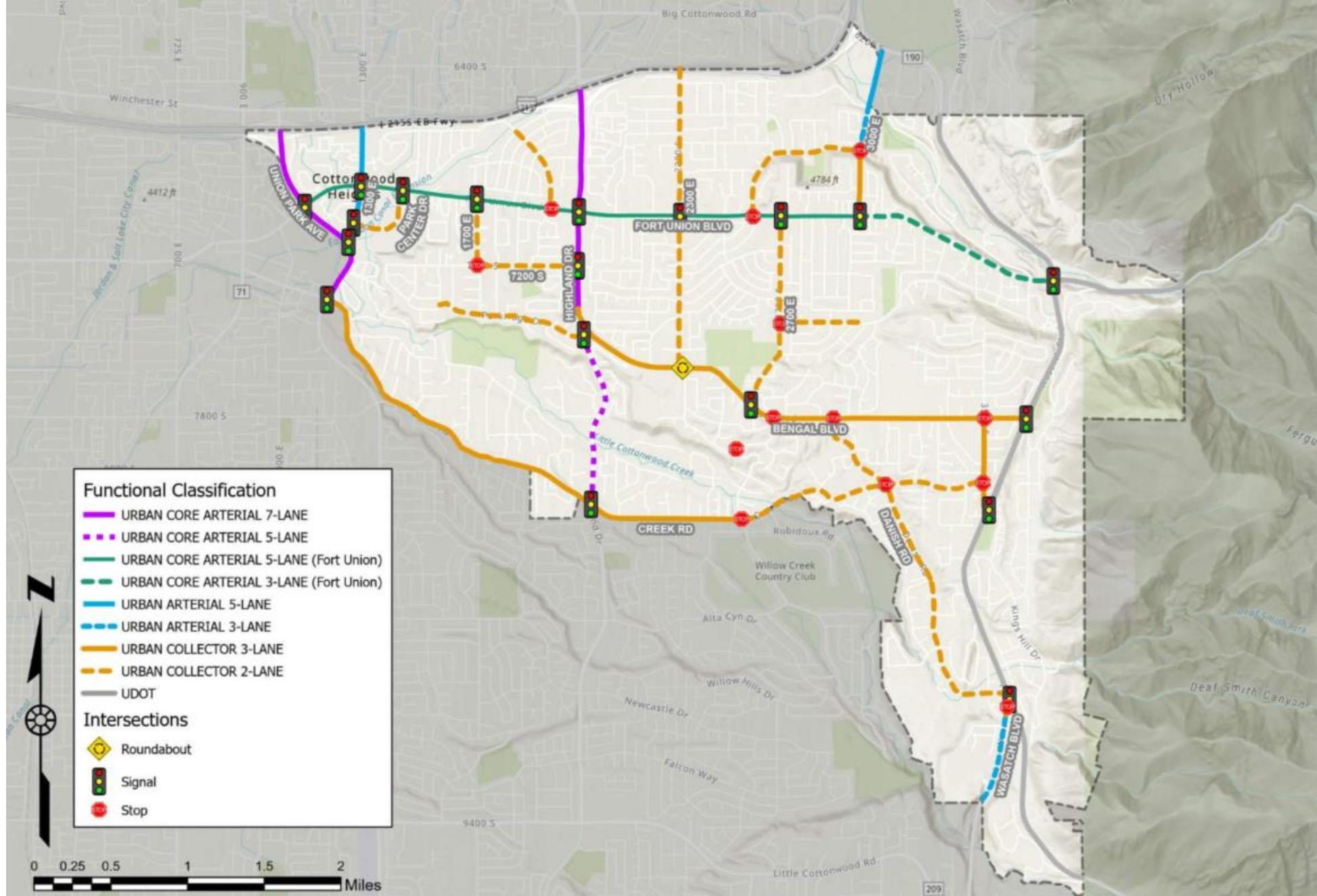
## ***COMPONENTS OF A TYPICAL ROADWAY CROSS-SECTION***



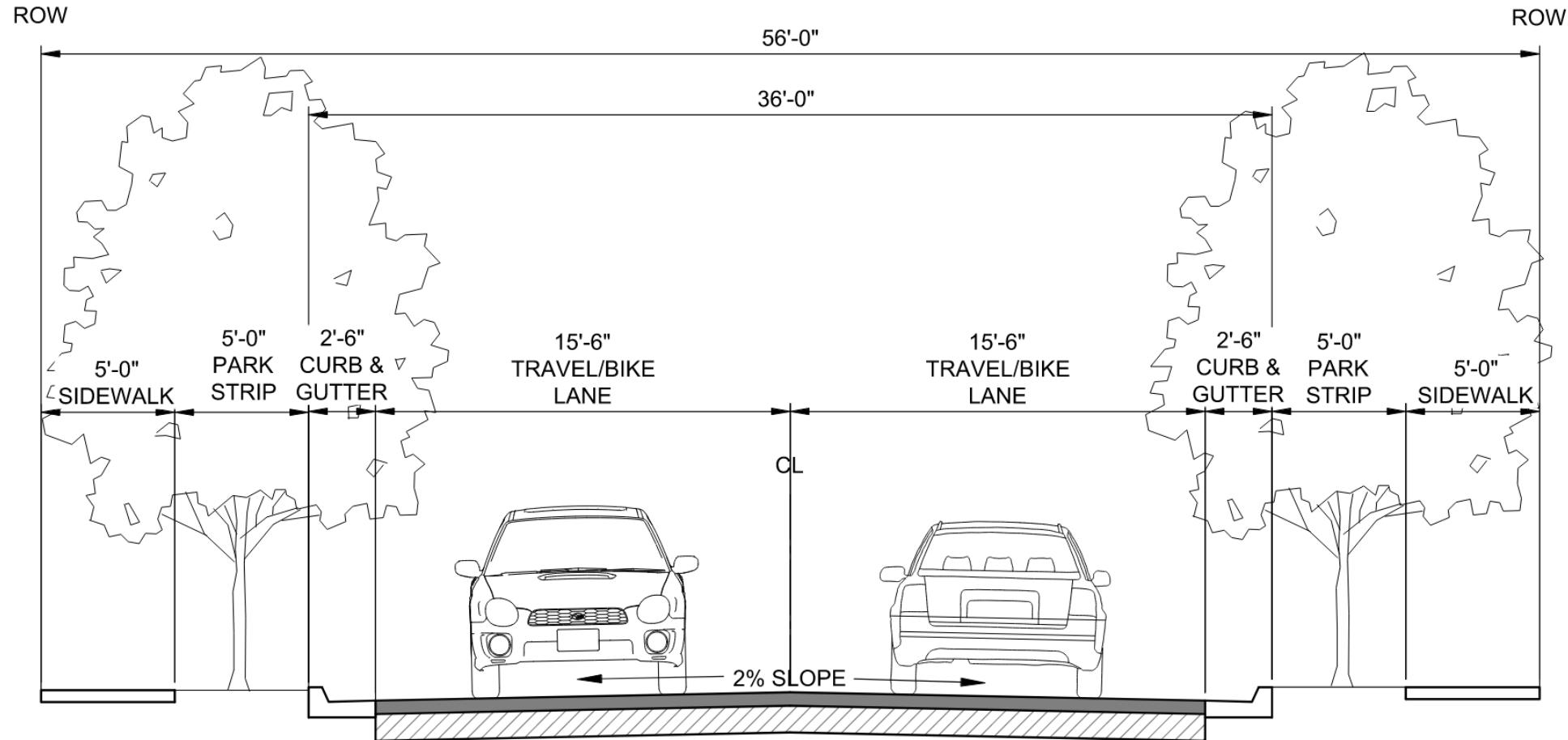
# Roadway Classifications

- Local Road – 56 ft (Shared Bike Lane)
- Urban Collector (Dedicated Bike Lane or Parking)
  - 2 Lane – 66 ft
  - 3 Lane – 75 ft
- Urban Arterial
  - 3 Lane – 75 ft (Dedicated Bike Lane or Parking)
  - 5 Lane – 85 ft
  - 7 Lane – 100 ft
- Urban Core Arterial
  - 5 Lane – 95 ft (Dedicated Bike Lane or Parking)
  - 7 Lane – 109 ft
- Fort Union Blvd
  - 3 Lane – 83 ft (Pedestrian Trail)
  - 5 Lane – 96 ft (Off Street Cycle Track)

# Existing Roadway Network

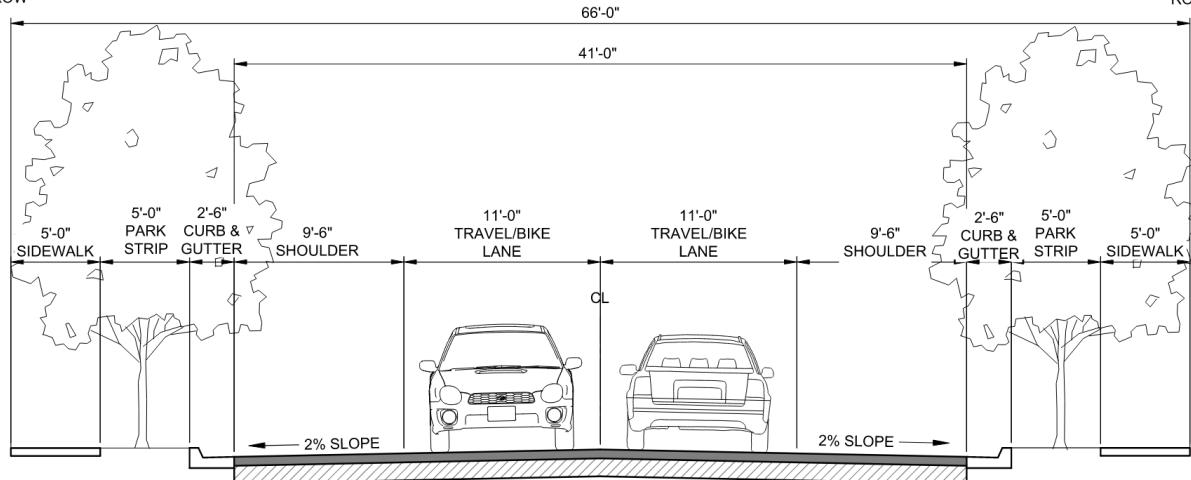


# LOCAL ROAD CROSS-SECTION



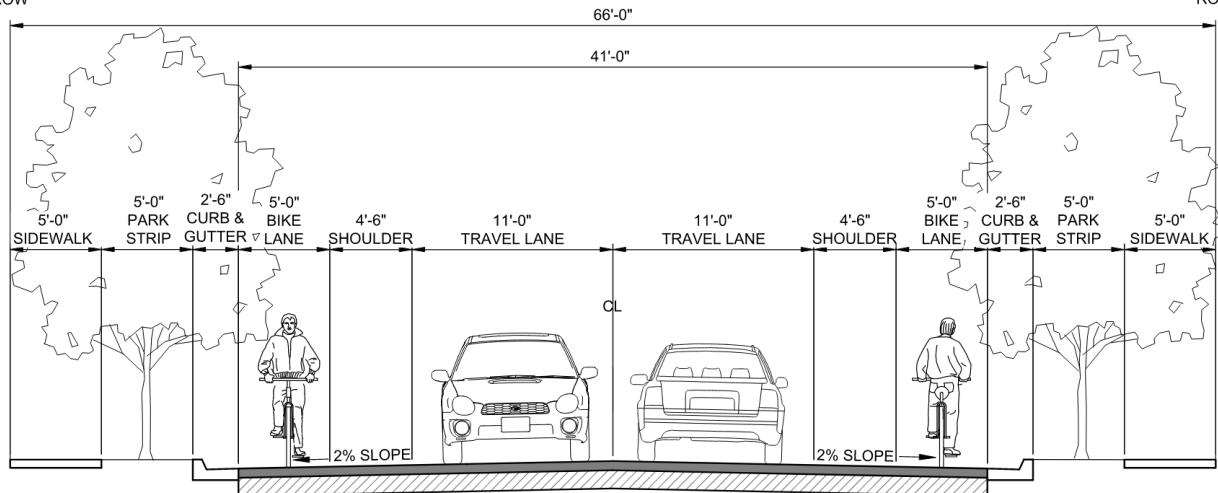
# URBAN COLLECTOR CROSS-SECTION

ROW



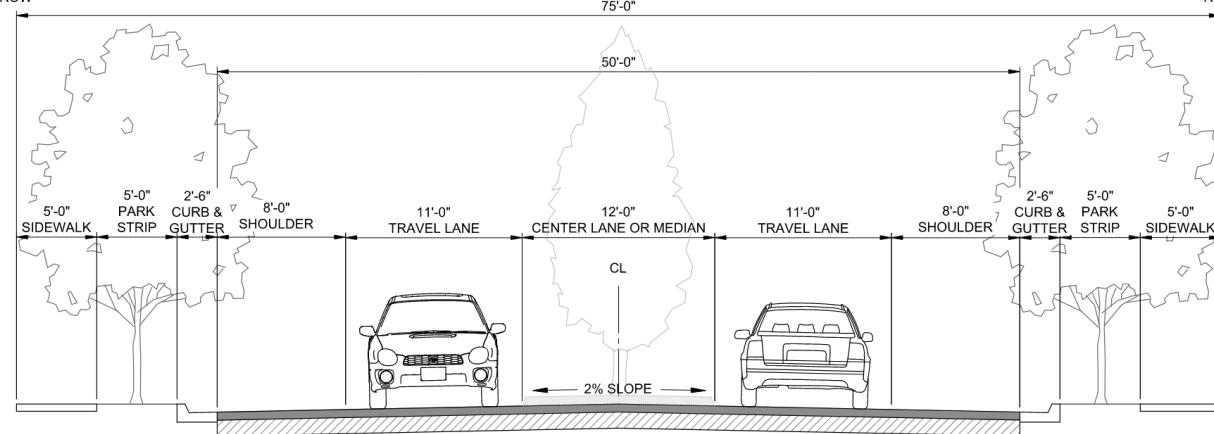
2-LANE URBAN COLLECTOR WITH PARKING

ROW



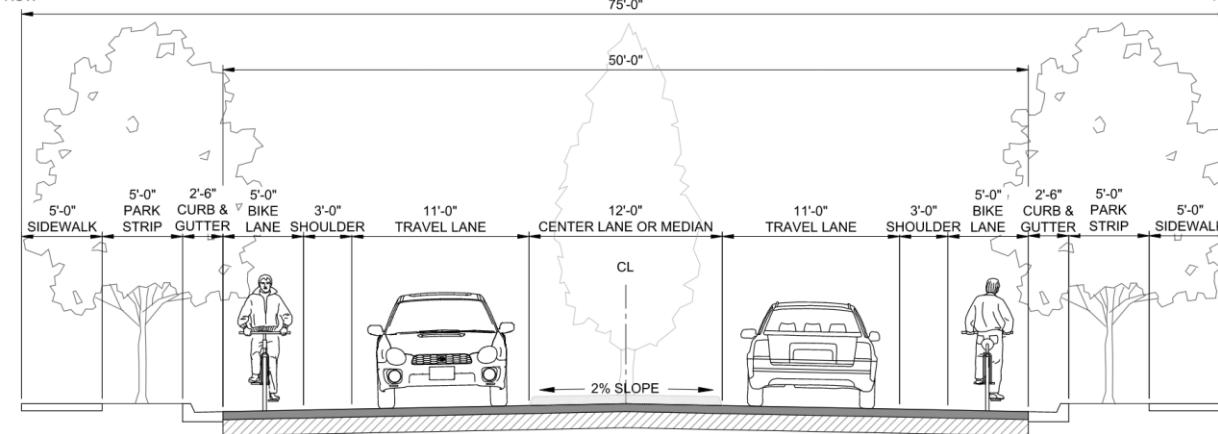
2-LANE URBAN COLLECTOR WITH BIKE LANE & NO PARKING

ROW



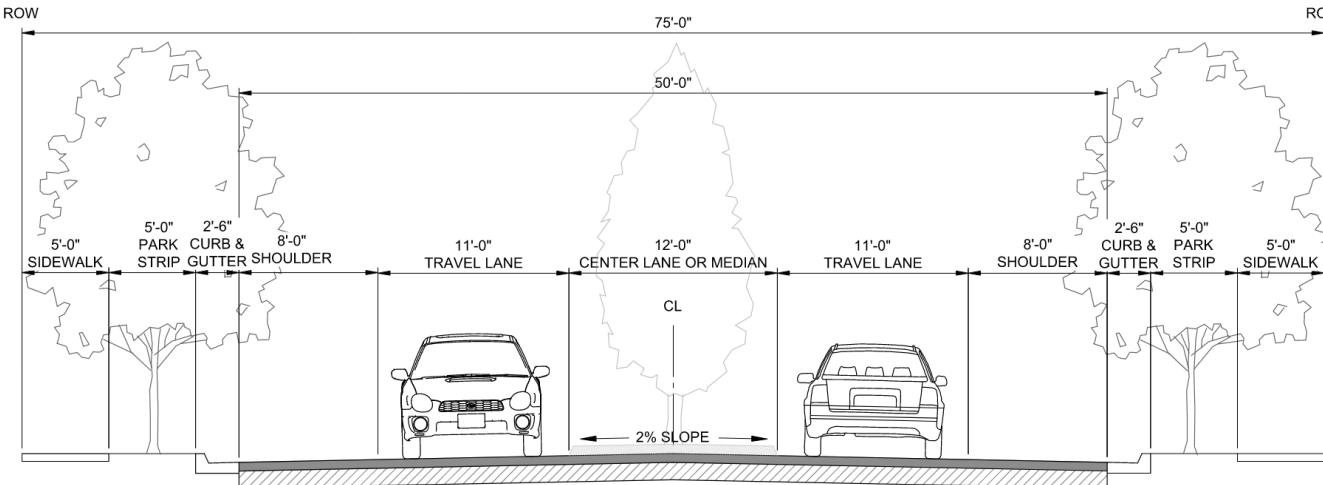
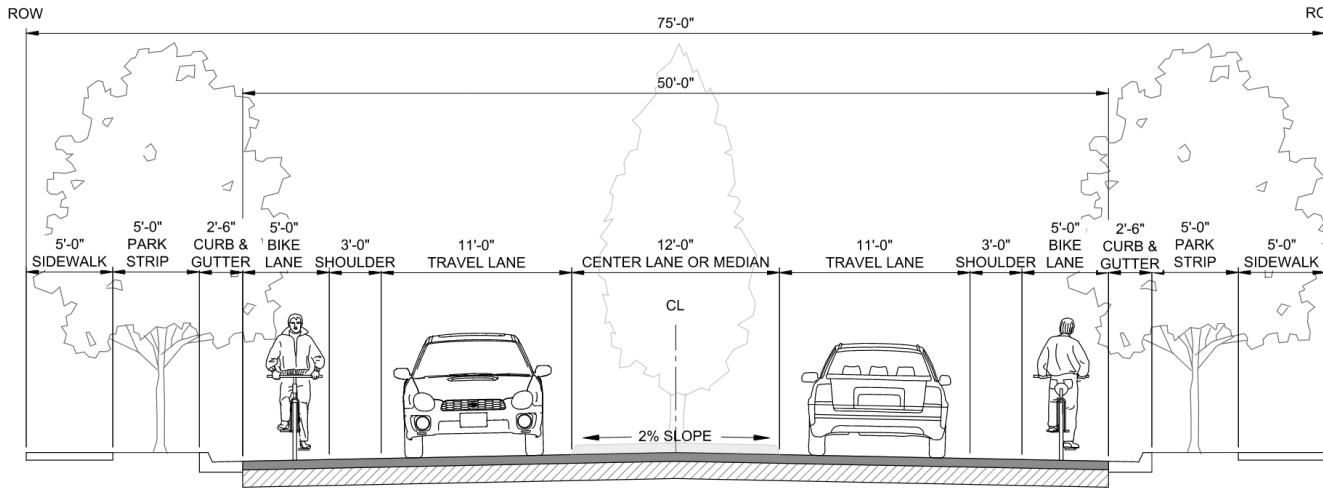
3-LANE URBAN COLLECTOR WITH PARKING

ROW

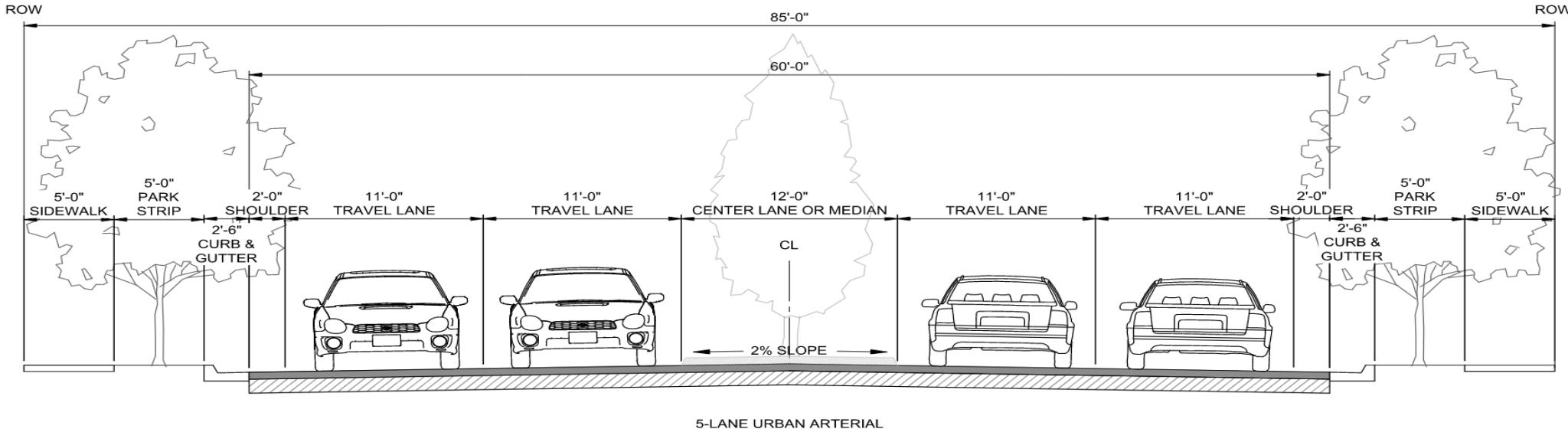


3-LANE URBAN COLLECTOR WITH BIKE LANE & NO PARKING

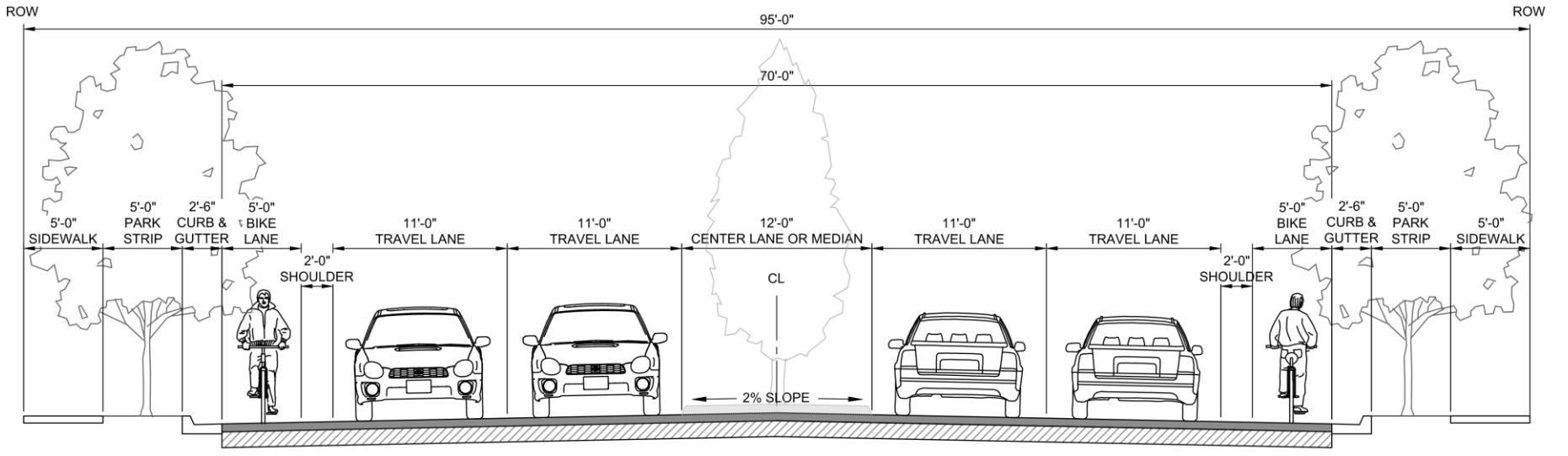
# 3- LANE URBAN ARTERIAL CROSS-SECTION



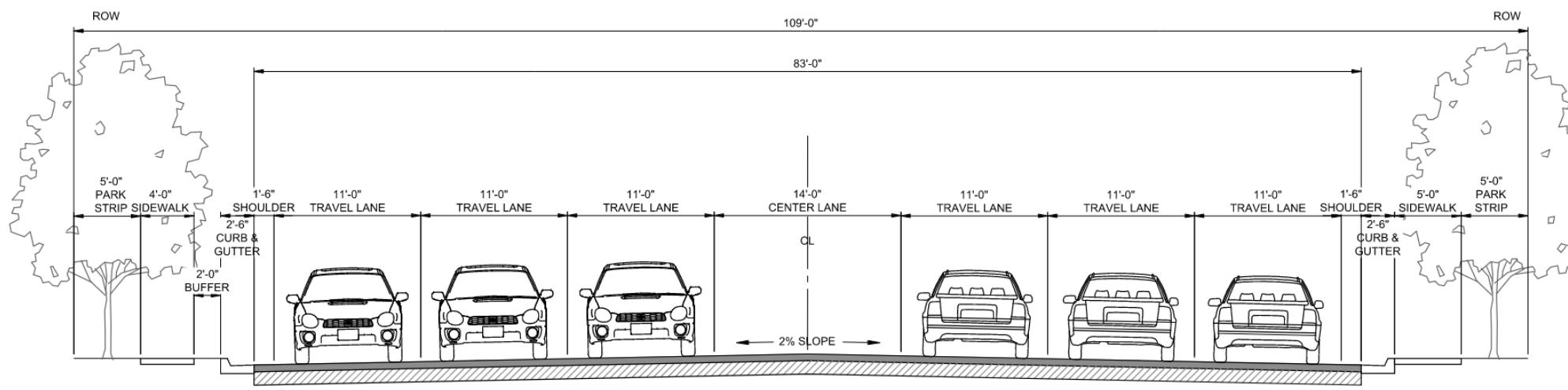
# 5 LANE URBAN ARTERIAL CROSS-SECTION



# URBAN CORE ARTERIAL



## 5-LANE URBAN CORE ARTERIAL WITH BIKE LANE



WEST SIDE OF ROADWAY

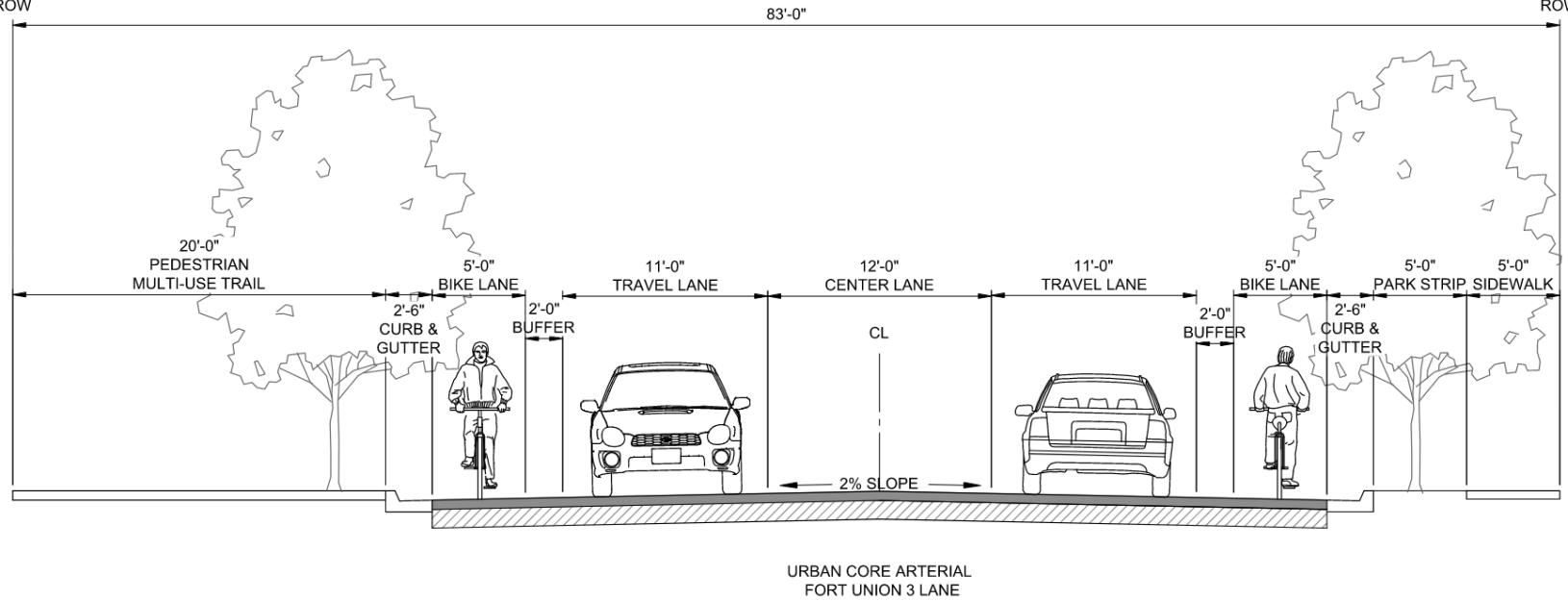
## URBAN CORE ARTERIAL- HIGHLAND DR - 7 LANE

EAST SIDE OF ROADWAY

ROW

83'-0"

ROW



# FORT UNION BLVD.

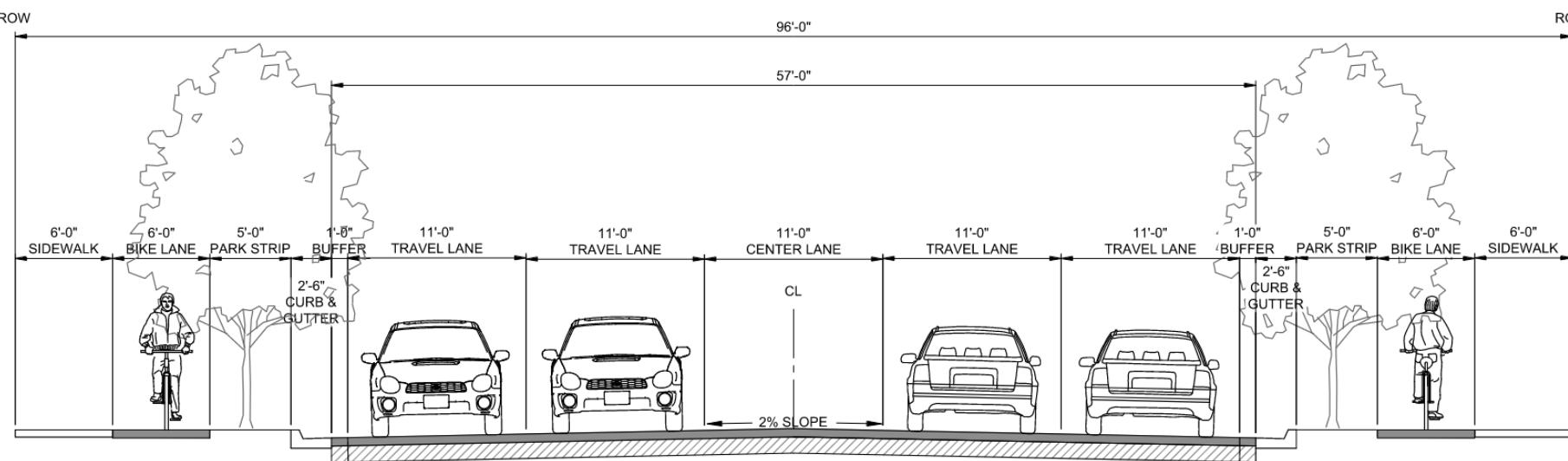
## URBAN CORE ARTERIAL

ROW

96'-0"

ROW

57'-0"



# Active Transportation Facilities

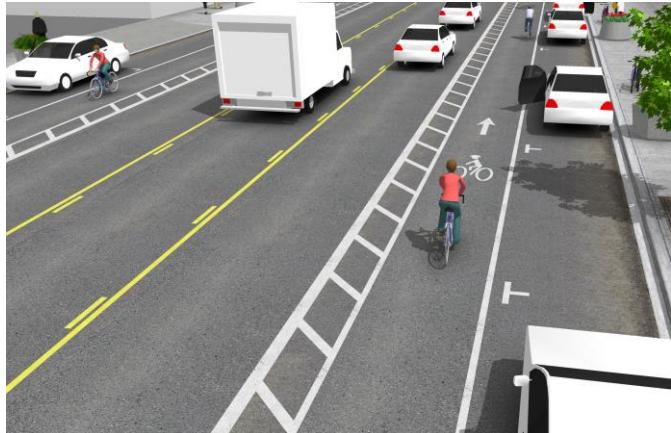
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## Types of Protection for Active Transportation Facilities

- Level 1 – Facility is grade separated the roadway with physical barriers (Cycle Track or Pedestrian Trail)
- Level 2 – Facility is located on roadway, separated with striping (Buffered Bike Lane)
- Level 3 – Facility is shared between bicyclists and vehicles (Shared Bike Lane)



Level 1



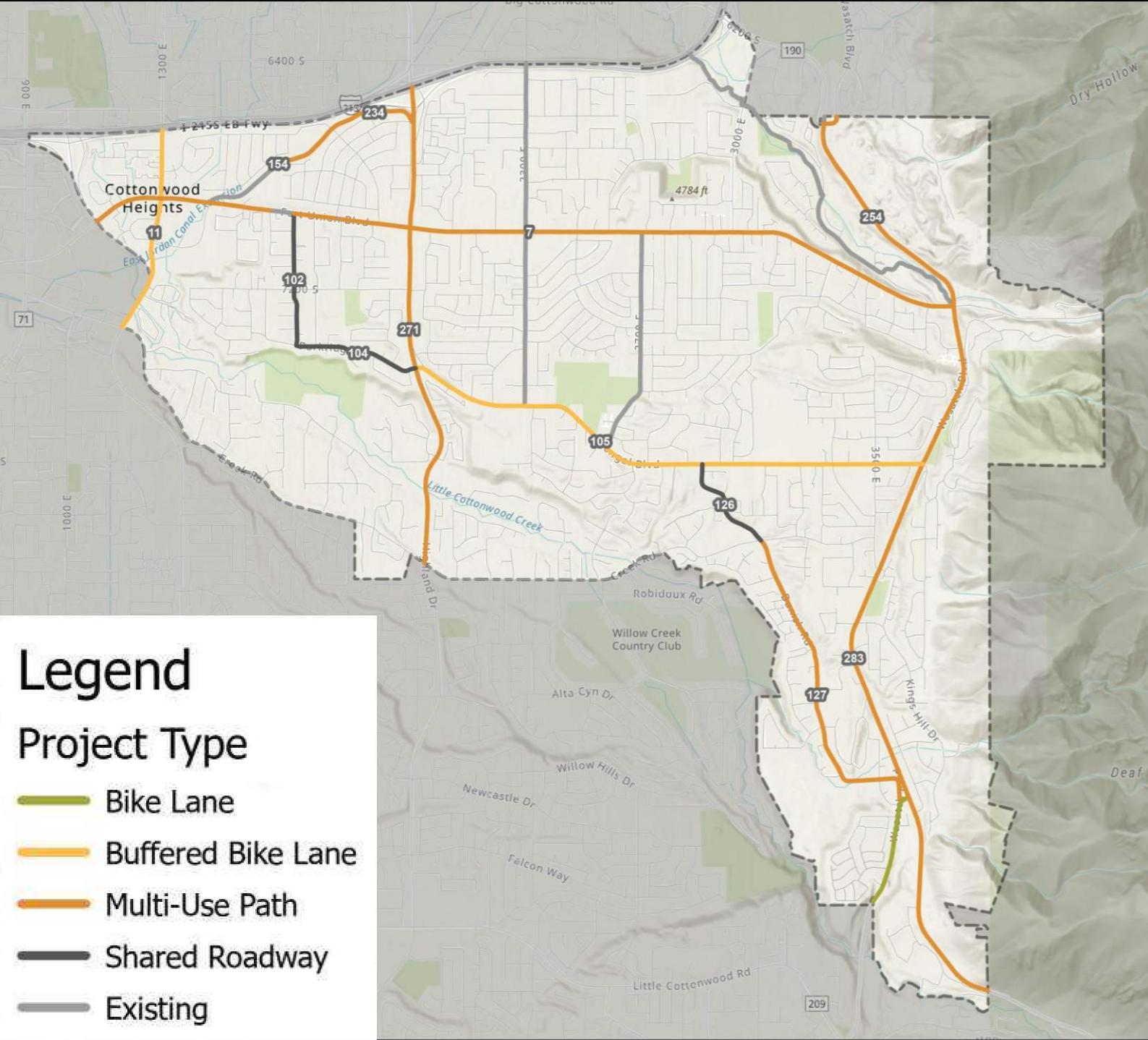
Level 2



Level 3



Existing Active  
Transportation  
Backbone  
Network



# Proposed Active Transportation Backbone Network

## Proposed Projects

Project Number	Project	Type
7	Fort Union Blvd: 1300 E to Wasatch Blvd	Multi-Use Path
11	Richmond St: Approx. Elgin Ave to South Union Ave	Buffered Bike Lane
102	1700 E/1710 E: Fort Union Blvd to Parkridge Dr	Shoulder Bikeway
104	Camino Way/Ponderosa Dr/7200 S/1330 E/McCormick Way	Shoulder Bikeway
105	Bengal Blvd: Highland Dr to Wasatch Blvd	Buffered Bike Lane
125	Creek Rd: Highland Dr to 3500 E	Shoulder Bikeway
126	Danish Rd: Bengal Blvd to Creek Rd	Shoulder Bikeway
127	Danish Rd/Wasatch Blvd: Creek Rd to South boundary	Bike Lane
128	North Little Cottonwood Rd: Wasatch Blvd to Cottonwood Heights East boundary	Bike Lane
154	East Jordan Canal Trail: 1495 E to Greenfield Way	Multi-Use Path
234	6670 S to Highland Dr	Multi-Use Path
254	Wasatch Blvd: 3900 S to Big Cottonwood Canyon Rd	Multi-Use Path
280	Fort Union Blvd: 700 E to 1300 E	Protected Cycle Track
283	Wasatch Blvd: City Boundary to Fort Union Blvd	Multi-Use Path

Source: Mid-Valley Active Transportation Plan

# Transportation Master Plan Model

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## High Level

- WFRC's Travel Demand Model: High Level Regional Analysis
- Roadway and Intersection Level of Service: Based on roadway daily traffic volumes

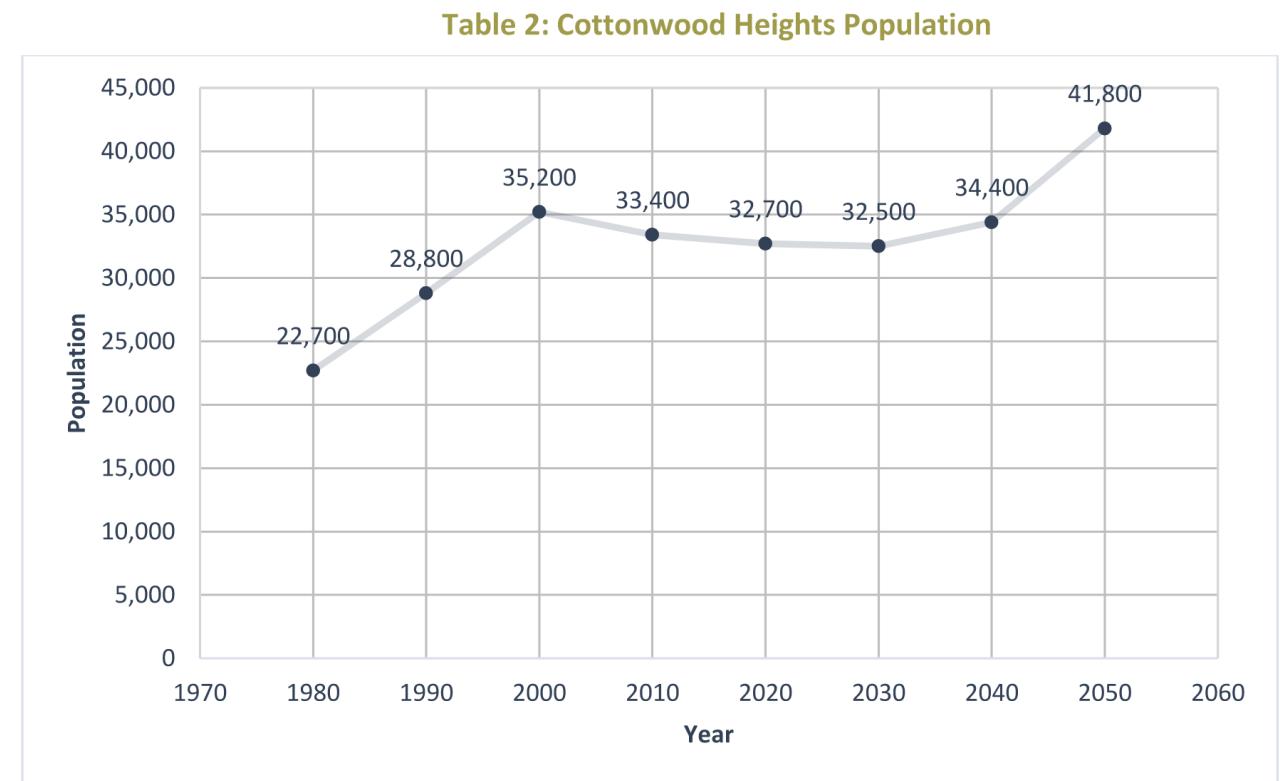


## Detailed Level

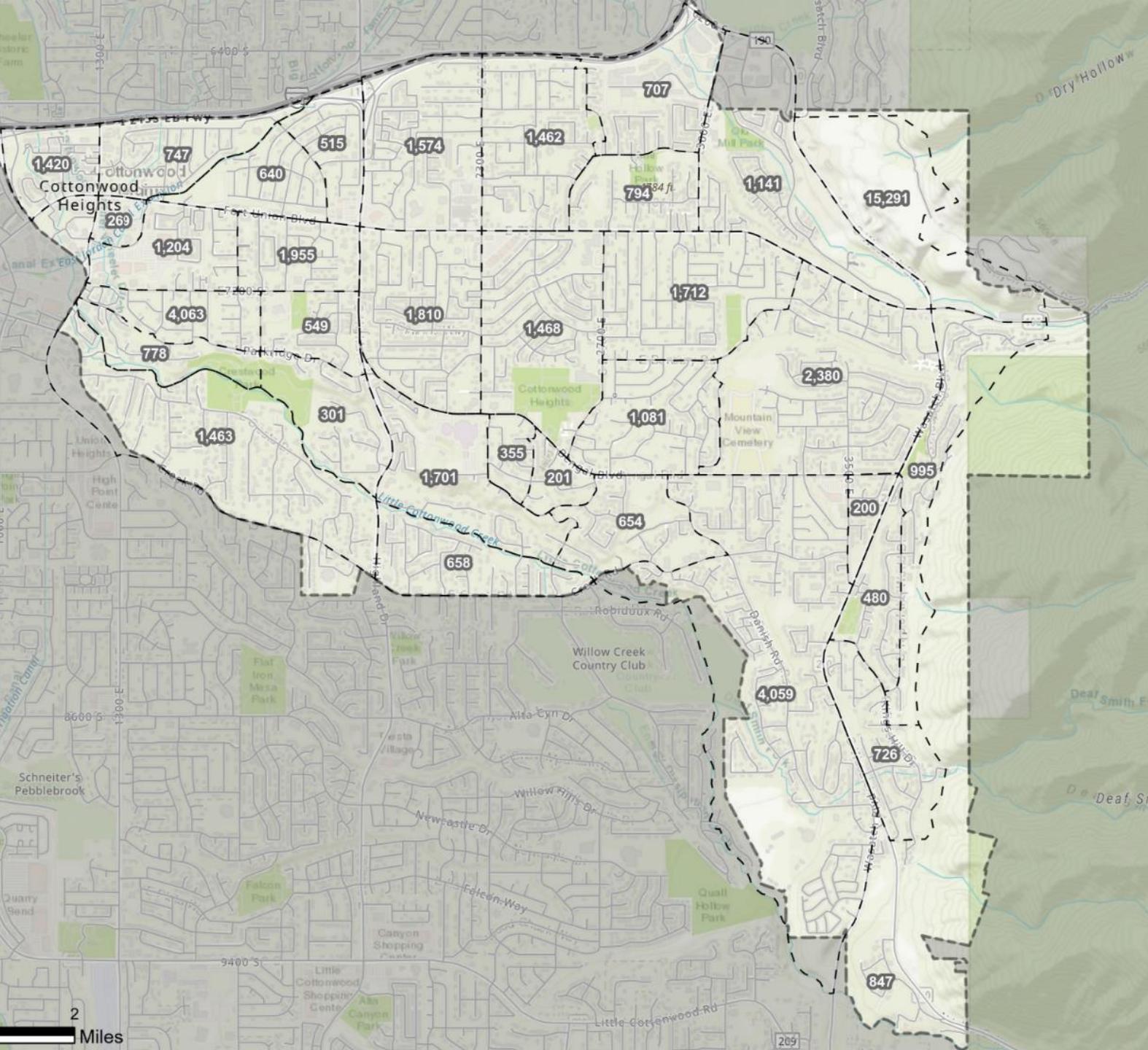
- Micro-simulation Model (VISSIM/Synchro)
  - Specific Corridors and Intersections
  - Not included in this study

# Population Data used in Model

- Population Graph has been updated to better reflect actual projected Population
- 2020 Census Population – 32,700
- 2050 Estimated Population – 41,800
- Gravel Pit Development – Major Contributor to Growth
- Transportation Model also uses Socio-Economic Data to calculate Future Demand on Roadways



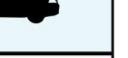
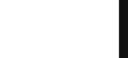
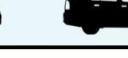
Source: US Census and WFRC Travel Demand Model



# WFRC Travel Demand Model TAZ Map 2050 Population

- Uses WFRC 2019 – 2050 Traffic Analysis Zones (TAZ) – Anticipated Population
- Includes Wasatch Blvd Gravel Pit Master Plan Buildout
- TAZ Numbers include both residential population and daytime employment population

# Level of Service

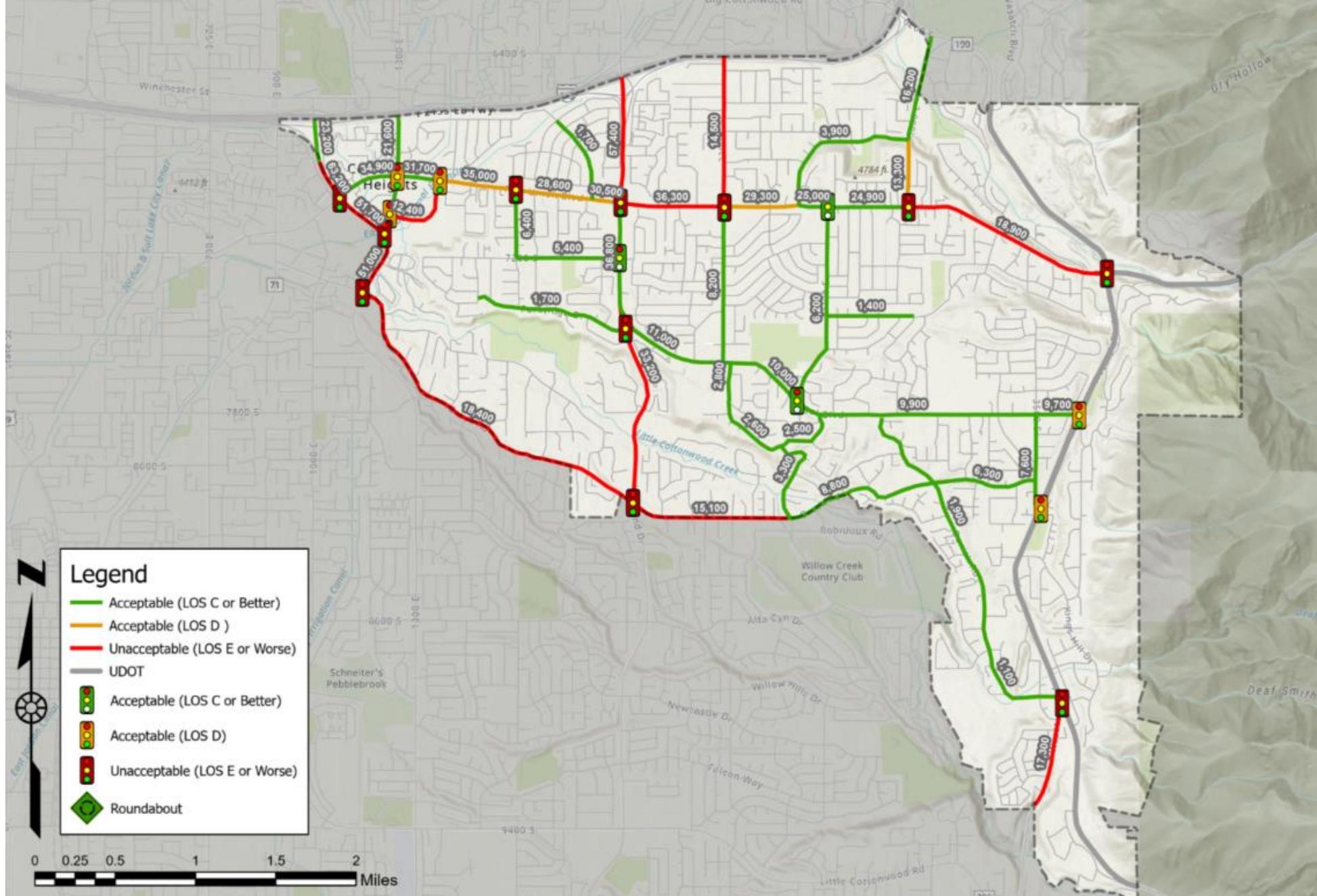
LEVEL OF SERVICE REPRESENTATION						
A						
B						
C						
D						
E						
F						

A large blue downward-pointing arrow is positioned to the right of the table, pointing towards the LOS D Criteria table.

## Roadway LOS D Criteria

Lanes	Arterial	Collector
2	13,400	12,100
3	15,100	13,400
4	31,200	24,200
5	32,800	26,900
6	43,500	NA
7	50,500	NA

# Long Term (2033-2050) No-Build LOS



# Recommended Roadway Projects

- Projects that recommend Walkability Improvements including Sidewalk & Pedestrian Safety Improvements
  - 2300 East - 1.1
  - Highland Drive - 2.7
  - Danish Road - 2.5
  - Wasatch Blvd – 2.2
  - Creek Road – 3.7
  - 7200 South – 3.3
  - Fort Union Blvd – 3.4
  - 3000 East – 2.6
- Intersection Projects that recommend Bicycle Safety Improvements to Intersection Projects
  - 2300 East / Fort Union Blvd Intersection - 1.5
  - Fort Union Blvd / 1300 East Intersection – 2.3
  - Highland Frontage & La Cresta Drive Intersection – 1.4
- No Projects include widening of the roadway for additional travel lanes

Table 1: Projects by Phasing

Project	Location	Improvement Type	Projected Phase of Unacceptable LOS
<b>Phase 1 (2023-2032)</b>			
1.1	2300 East: Fort Union Blvd to north city boundary <sup>2</sup>	Improve Pedestrian Safety & Walkability, Reconfigure roadway from 2 to 3 lanes**	Existing LOS E
1.2	Fort Union Blvd & 2300 East (Intersection)	Auxiliary turn lanes to improve intersection delay and Improve Bicycle Safety through intersection	Phase 1 <sup>3</sup>
1.3	Park Center Drive: 1300 East to Fort Union Blvd <sup>2</sup>	Reconfigure roadway from 2 to 3 lanes**	Existing LOS E
1.4	Highland Frontage & La Cresta Drive (Intersection)	Realign Intersection & Improve Pedestrian Safety with Construction of Highland Drive Pedestrian Trail	Phase 1 <sup>3</sup>
1.5	Highland Drive (2000 East) & Fort Union (Intersection)	Reconfigure roadway from 6 to 7 lanes from 7200 South to 6900 South	Phase 1 <sup>3</sup>
<b>Phase 1 Total</b>			
<b>Phase 2 (2033-2042)</b>			
2.1	Fort Union Blvd: 3000 East to Wasatch Blvd <sup>1,2</sup>	Roadway redesign to include Pedestrian Trail per approved cross-section	Phase 2
2.2	Wasatch Boulevard: SR-210 to south city boundary <sup>2</sup>	Improve Pedestrian Safety & Walkability with multi-use trail, Reconfigure roadway from 2 to 3 lanes**	Phase 2
2.3	Fort Union Blvd & 1300 East (Intersection)	Intersection Improvement to reduce delay and improve pedestrian safety and bicycle accommodations	Phase 2 <sup>3</sup>
2.4	2600 East: Bengal Blvd to Bridgewater Drive <sup>2</sup>	Reconfigure roadway from 2 to 3 lanes**	N/A
2.5	Danish Road: Creek Road to Wasatch Blvd <sup>2</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	N/A
2.6	3000 East: 6200 South to 7000 South <sup>1,2</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	Phase 2
2.7	Highland Dr (2000): Fort Union Blvd to North City Boundary <sup>1</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	Phase 2
<b>Phase 2 Total</b>			
<b>Phase 3 (2033-2050)</b>			
3.1	3500 East & Bengal Blvd	Roundabout Intersection	N/A <sup>3</sup>
3.2	1700 East: Fort Union Blvd to 7200 South <sup>2</sup>	Improve Pedestrian Safety & Walkability, Reconfigure roadway from 2 to 3 lanes**	N/A
3.3	7200 South: 1700 East to Highland Drive <sup>2</sup>	Improve Pedestrian Safety & Walkability, Reconfigure roadway from 2 to 3 lanes**	N/A
3.4	Fort Union Blvd: 1300 East to 3000 East <sup>1,2</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity with trail*	Phase 3
3.5	Highland Drive (2000 East): Bengal Blvd to Creek Road <sup>1</sup>	Reconfigure roadway from 4/5 to 7 lanes	Phase 3
3.6	Union Park Blvd: I-215 to Creek Road <sup>1</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	Phase 3
3.7	Creek Road: Union Park Blvd to Oak Creek Drive	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity	Phase 3
<b>Phase 3 Total</b>			

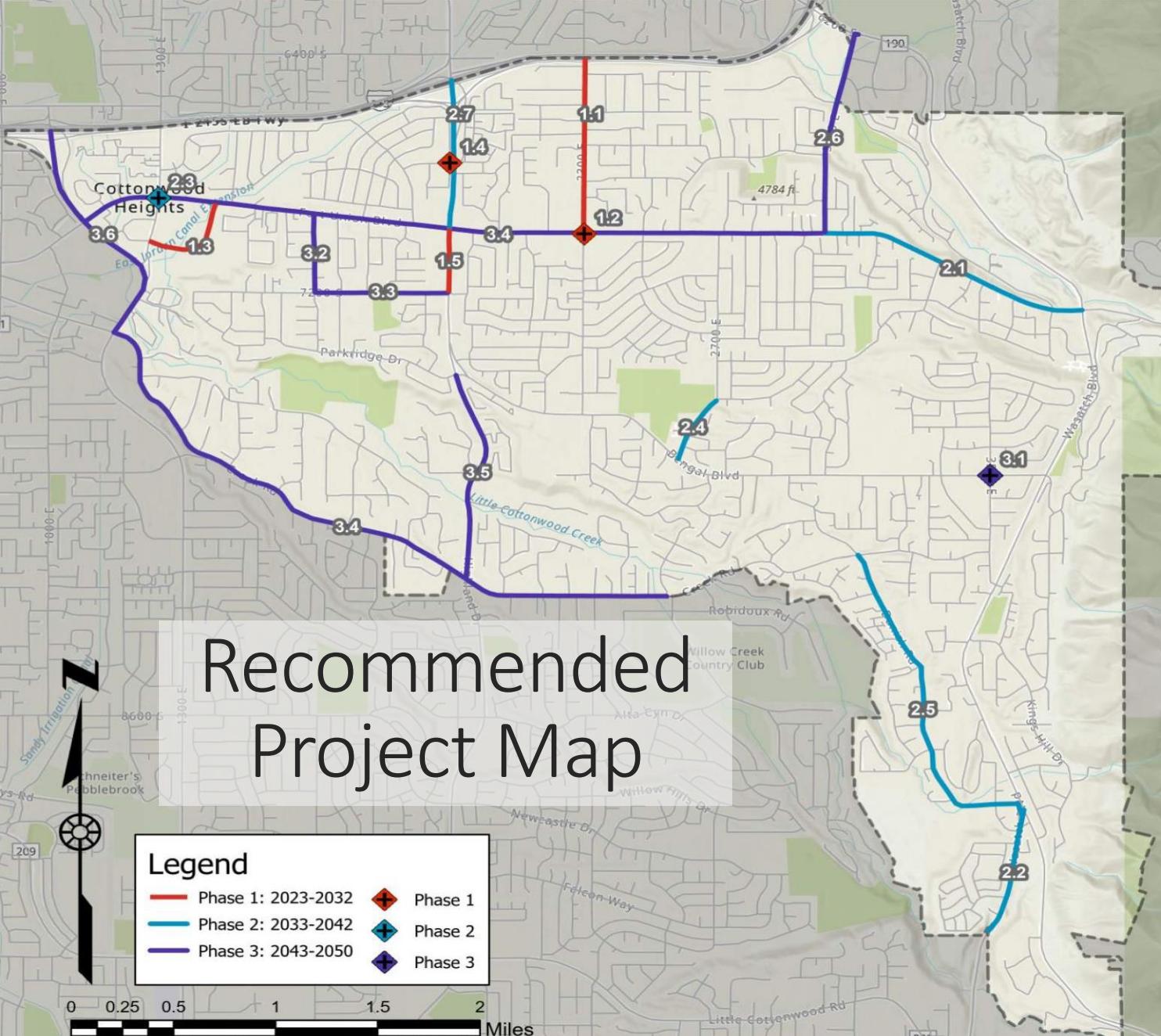
<sup>1</sup>Project Identified the WFRC 2023-2050 Regional Transportation Plan

<sup>2</sup>Project Identified in the 2019 Transportation Capital Facilities Plan

<sup>3</sup>Anticipated Failure Based on Roadway Segment Volume

\*Operational improvements include shoulder widening, intersection improvements, bus turnouts, turn pockets or center medians

\*\* Add Center turn lane



Project	Location	Improvement Type	Projected Phase of Unacceptable LOS	Estimated Project Cost (Phased)
<b>Phase 1 (2023-2032)</b>				
1.1	2300 East: Fort Union Blvd to north city boundary <sup>1</sup>	Improve Pedestrian Safety & Walkability, Reconfigure roadway from 2 to 3 lanes**	Existing LOS E	\$3,800,000
1.2	Fort Union Blvd & 2300 East (Intersection)	Auxiliary turn lanes to improve intersection delay and Improve Bicycle Safety through intersection	Phase 1 <sup>3</sup>	\$3,500,000
1.3	Park Center Drive: 1300 East to Fort Union Blvd <sup>2</sup>	Reconfigure roadway from 2 to 3 lanes**	Existing LOS E	\$3,421,000
1.4	Highland Frontage & La Cresta Drive (Intersection)	Realign Intersection & Improve Pedestrian Safety with Construction of Highland Drive Pedestrian Trail	Phase 1 <sup>3</sup>	\$3,500,000
1.5	Highland Drive (2000 East) & Fort Union (Intersection)	Reconfigure roadway from 6 to 7 lanes from 7200 South to 6900 South	Phase 1 <sup>3</sup>	\$5,000,000
<b>Phase 1 Total</b>				<b>\$19,221,000</b>
<b>Phase 2 (2033-2042)</b>				
2.1	Fort Union Blvd: 3000 East to Wasatch Blvd <sup>4,2</sup>	Roadway redesign to include Pedestrian Trail per approved cross-section	Phase 2	\$5,730,000
2.2	Wasatch Boulevard: SR-210 to south city boundary <sup>2</sup>	Improve Pedestrian Safety & Walkability with multi-use trail, Reconfigure roadway from 2 to 3 lanes**	Phase 2	\$12,739,000
2.3	Fort Union Blvd & 1300 East (Intersection)	Intersection Improvement to reduce delay and improve pedestrian safety and bicycle accommodations	Phase 2 <sup>3</sup>	\$4,500,000
2.4	2600 East: Bengal Blvd to Bridgewater Drive <sup>2</sup>	Reconfigure roadway from 2 to 3 lanes**	N/A	\$2,329,000
2.5	Danish Road: Creek Road to Wasatch Blvd <sup>2</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	N/A	\$16,473,000
2.6	3000 East: 6200 South to 7000 South <sup>1,2</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	Phase 2	\$7,180,000
2.7	Highland Dr (2000): Fort Union Blvd to North City Boundary <sup>1</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	Phase 2	\$2,576,000
<b>Phase 2 Total</b>				<b>\$48,951,000</b>
<b>Phase 3 (2033-2050)</b>				
3.1	3500 East & Bengal Blvd	Roundabout Intersection	N/A <sup>3</sup>	\$2,500,000
3.2	1700 East: Fort Union Blvd to 7200 South <sup>2</sup>	Improve Pedestrian Safety & Walkability, Reconfigure roadway from 2 to 3 lanes**	N/A	\$5,726,000
3.3	7200 South: 1700 East to Highland Drive <sup>2</sup>	Improve Pedestrian Safety & Walkability, Reconfigure roadway from 2 to 3 lanes**	N/A	\$10,926,000
3.4	Fort Union Blvd: 1300 East to 3000 East <sup>1,2</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity with trail*	Phase 3	\$13,630,000
3.5	Highland Drive (2000 East): Bengal Blvd to Creek Road <sup>1</sup>	Reconfigure roadway from 4/5 to 7 lanes	Phase 3	\$31,518,000
3.6	Union Park Blvd: I-215 to Creek Road <sup>1</sup>	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity*	Phase 3	\$6,304,000
3.7	Creek Road: Union Park Blvd to Oak Creek Drive	Operational Project to Improve Pedestrian Safety, Walkability, and Traffic Flow Without Adding Lane Capacity	Phase 3	\$9,957,000
<b>Phase 3 Total</b>				<b>\$80,561,000</b>

<sup>1</sup>Project Identified the WFRP 2023-2050 Regional Transportation Plan

<sup>2</sup>Project Identified in the 2019 Transportation Capital Facilities Plan

<sup>3</sup>Anticipated Failure Based on Roadway Segment Volume

<sup>4</sup>Operational improvements include shoulder widening, intersection improvements, bus turnouts, turn pockets or center medians

<sup>\*\*</sup> Add Center turn lane