



Lone Tree Overpass Project Update

City of Flagstaff Mayor & Council Presentation



Presentation Overview

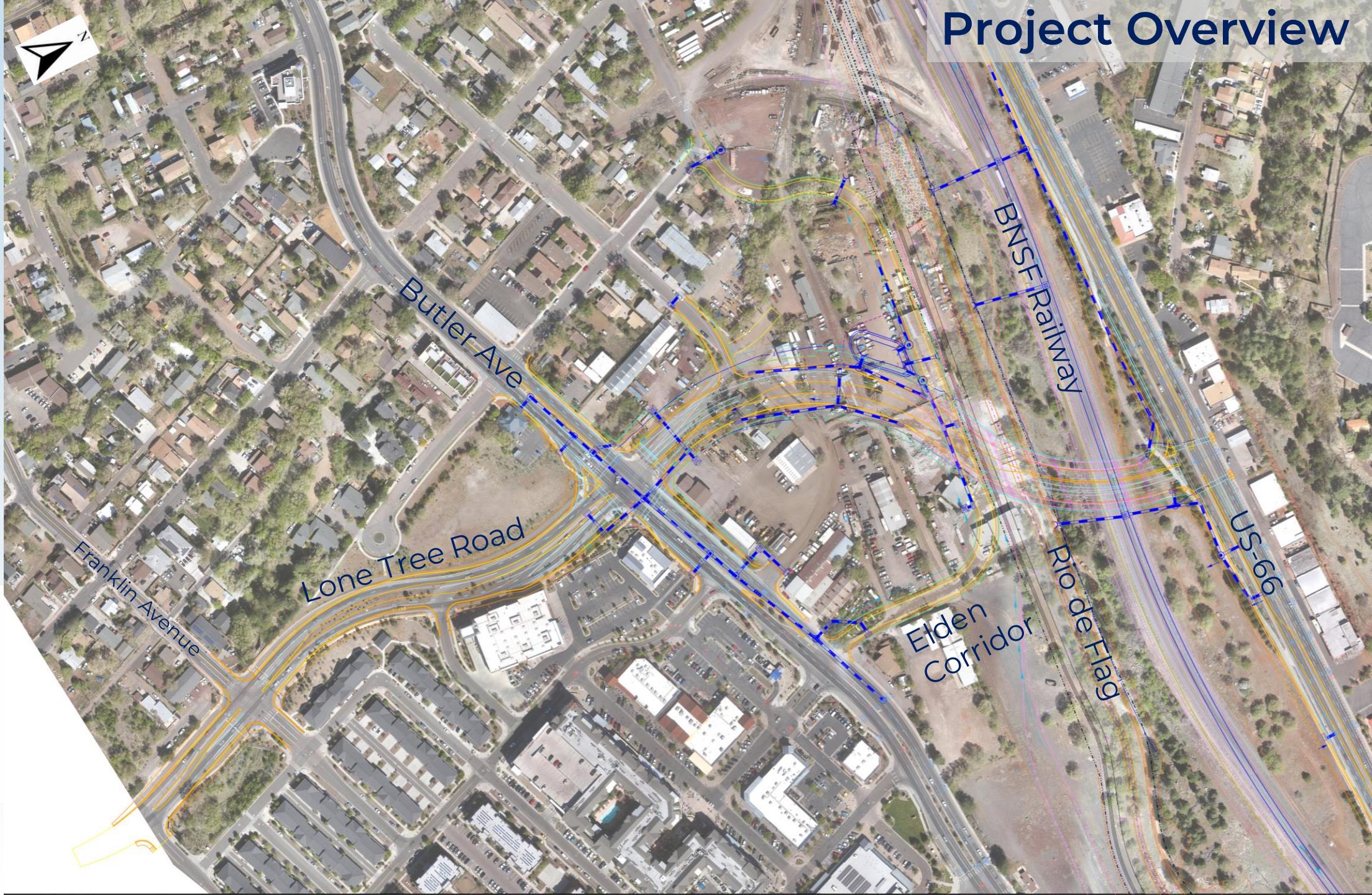
1. Project Overview
2. Traffic Demand Model
3. Intersection Types
4. Green House Gas Analysis
5. Aesthetics and Civic Spaces
6. Path Forward

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Project Overview





Lone Tree – Sawmill to Butler



Warrant Analysis
at Franklin and
Sawmill

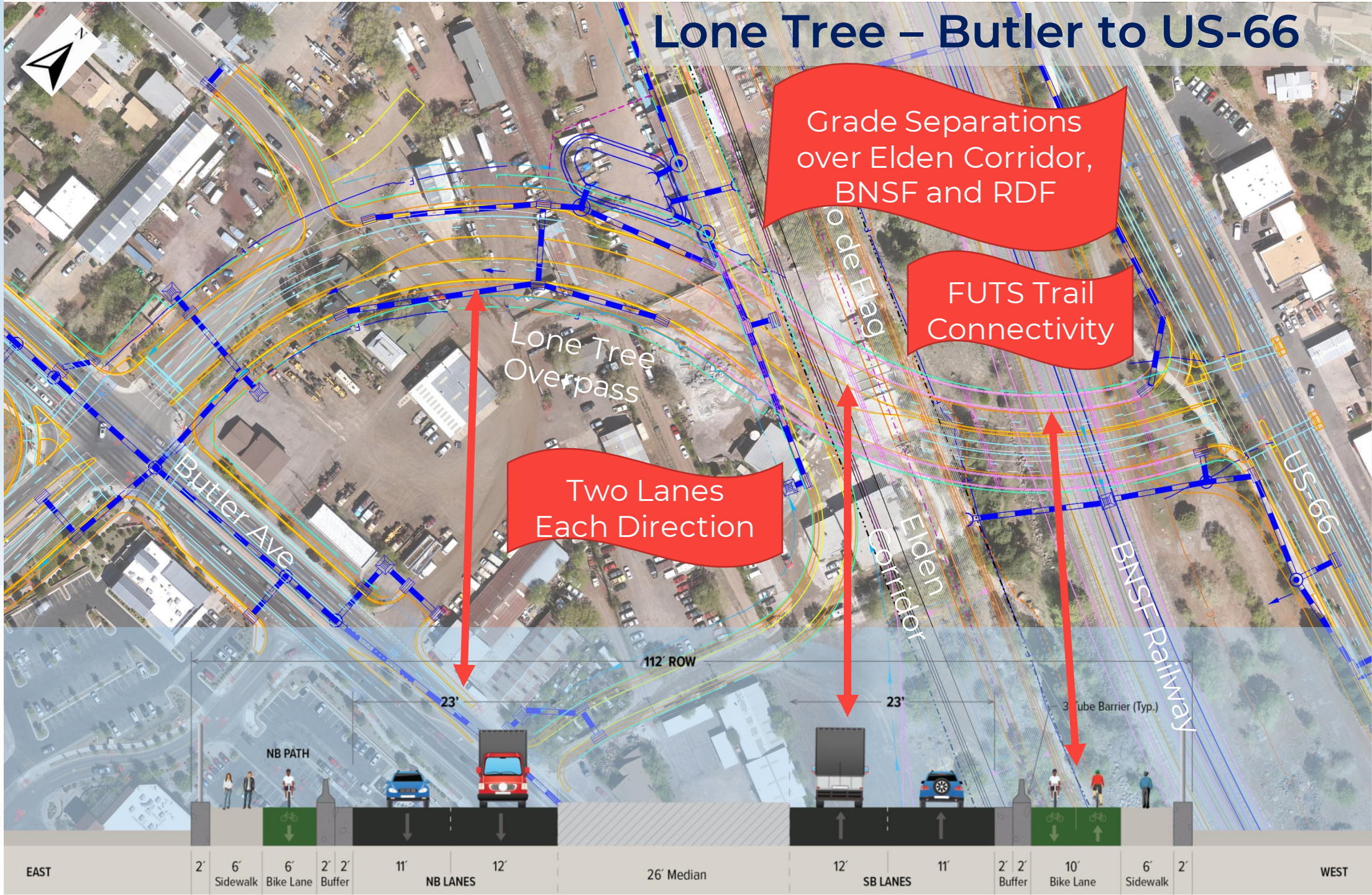
Additional Lane
Each Direction

FUTS Trail
Connectivity

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Lone Tree – Butler to US-66



US-66 – Elden to East of Lone Tree



NORTH	4'	4' Bike Lane	2'	11'	WB LANES	12'	Median width varies 29' maximum	12'	EB LANES	11'	5' Bike Lane	11'	Right Turn Lane	2'	5' Pkwy	10'	Futs Trail	SOUTH
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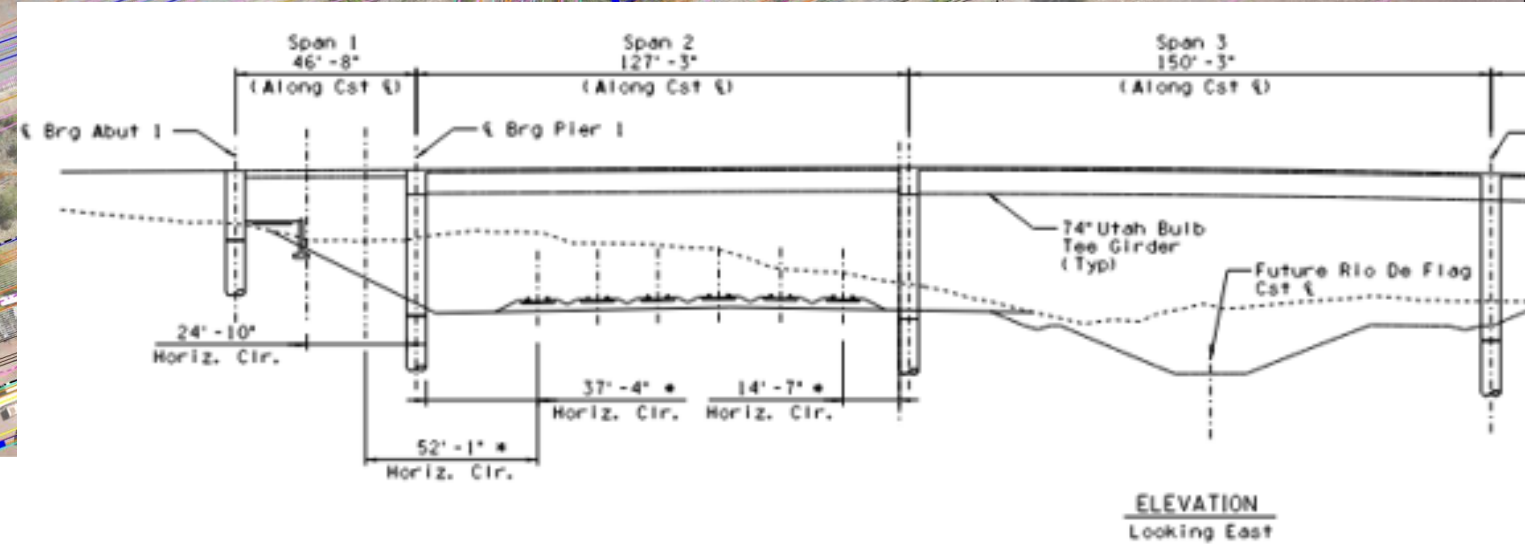
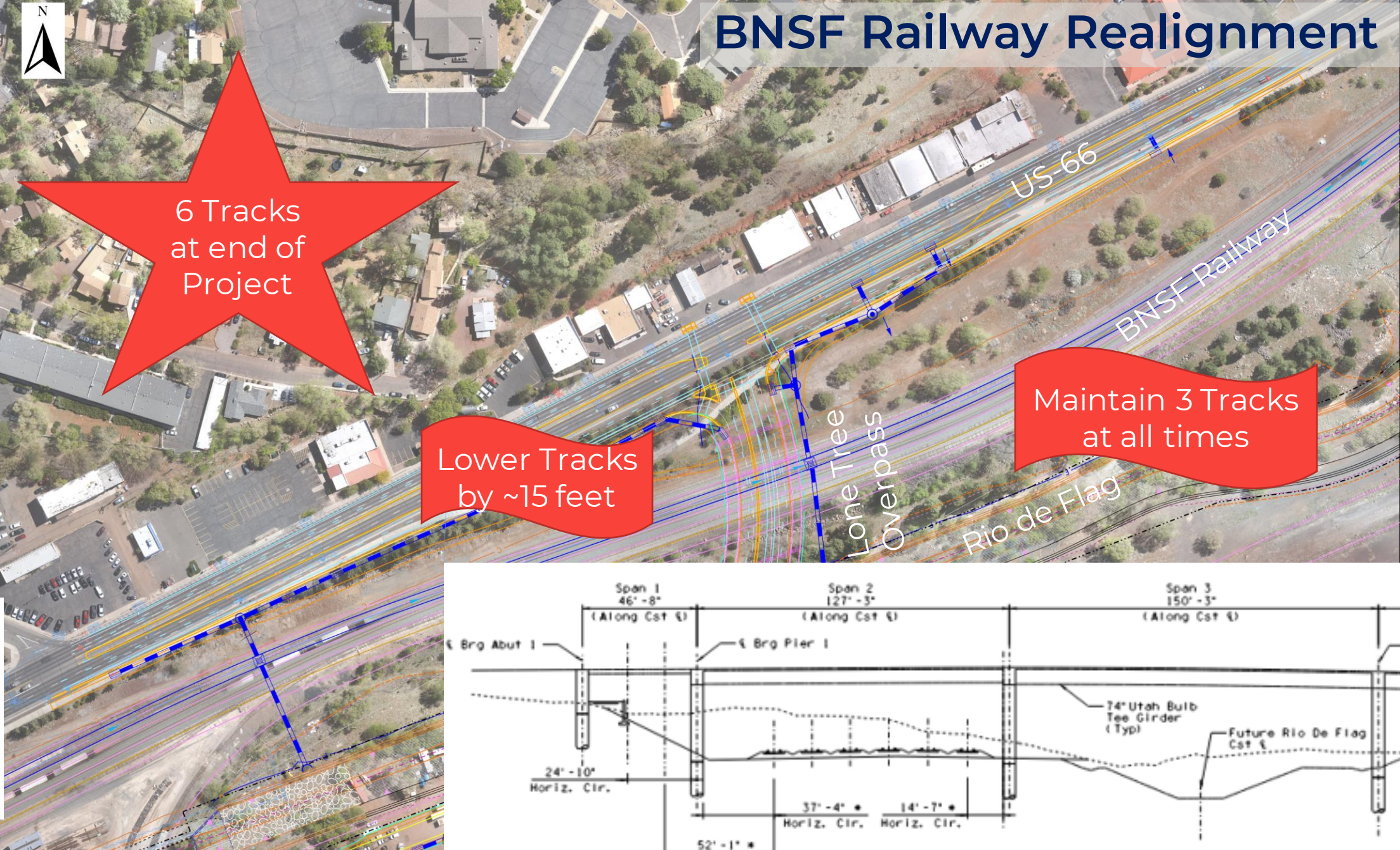
BNSF Railway Realignment



6 Tracks
at end of
Project

Lower Tracks
by ~15 feet

Maintain 3 Tracks
at all times

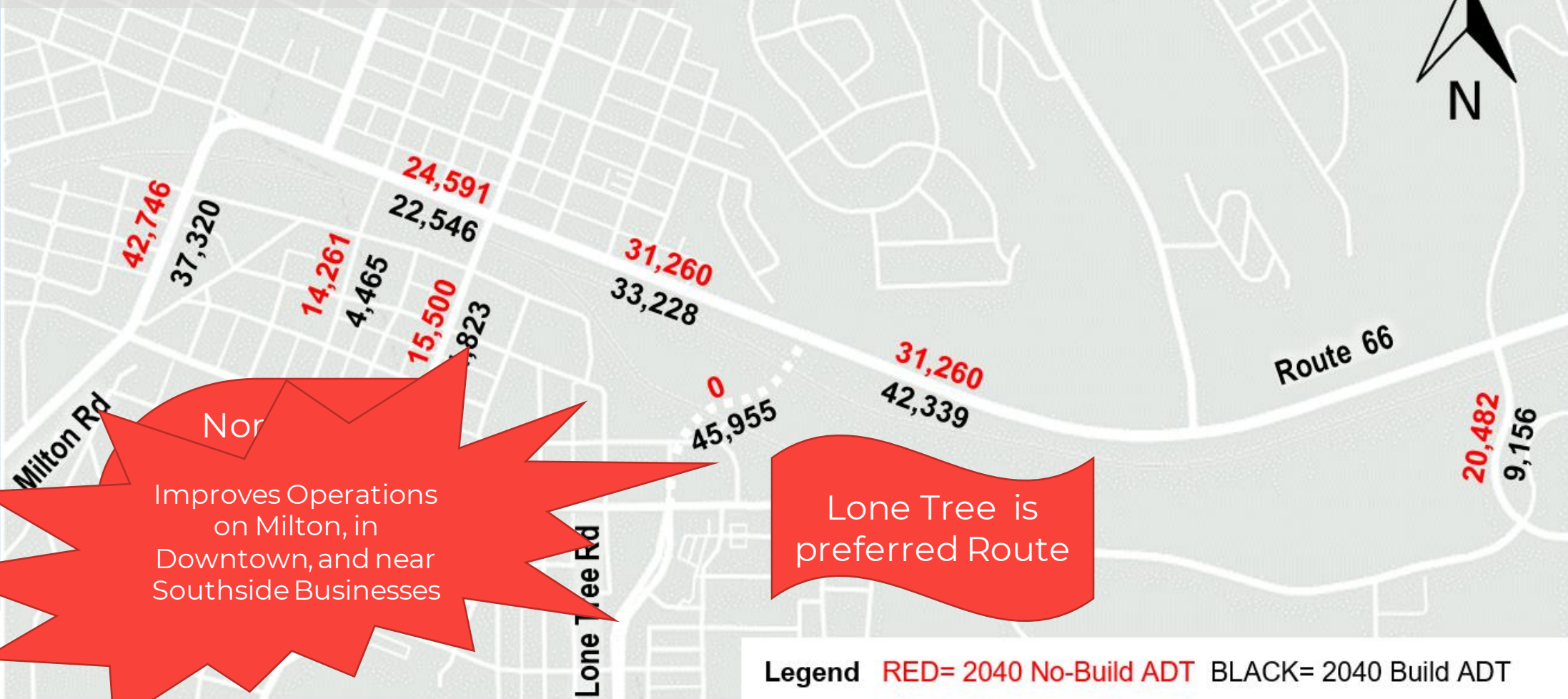




Travel Demand Model



Average Daily Volumes



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North/South Volumes
Improves Operations on Milton, in Downtown, and near Southside Businesses

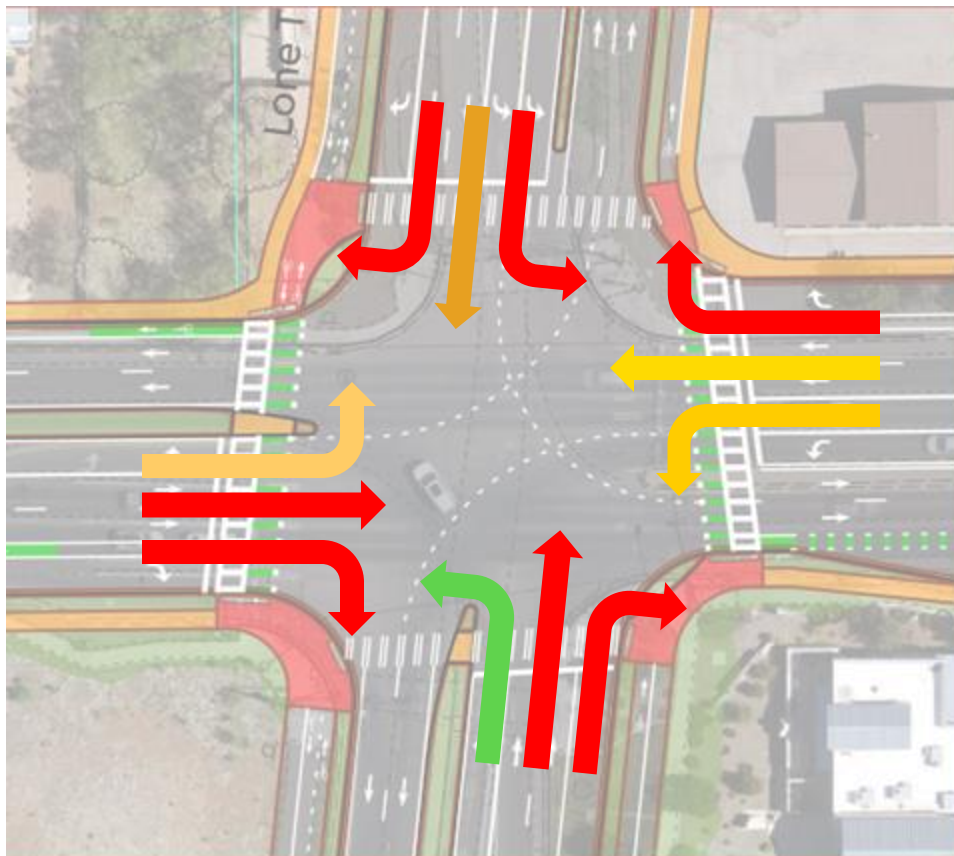
Lone Tree is preferred Route

Legend RED= 2040 No-Build ADT BLACK= 2040 Build ADT

Reduction in North/South Volumes could open up opportunities to improve multi-modal operations on Beaver and San Francisco



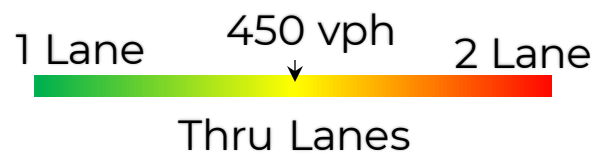
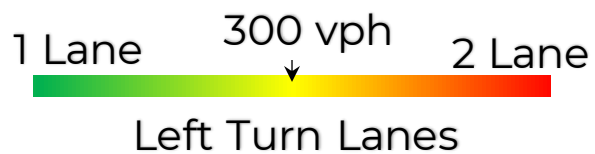
Intersection Volumes



Lone Tree Rd & Butler Ave

2040 – Build Traffic

- Separate Right Turn Lanes can be considered.
- Thru volumes high enough for more than (1) lane.
- Southbound Lefts are high enough for Double Left Turns
 - Westbound Double Lefts needed with high Eastbound Thru traffic

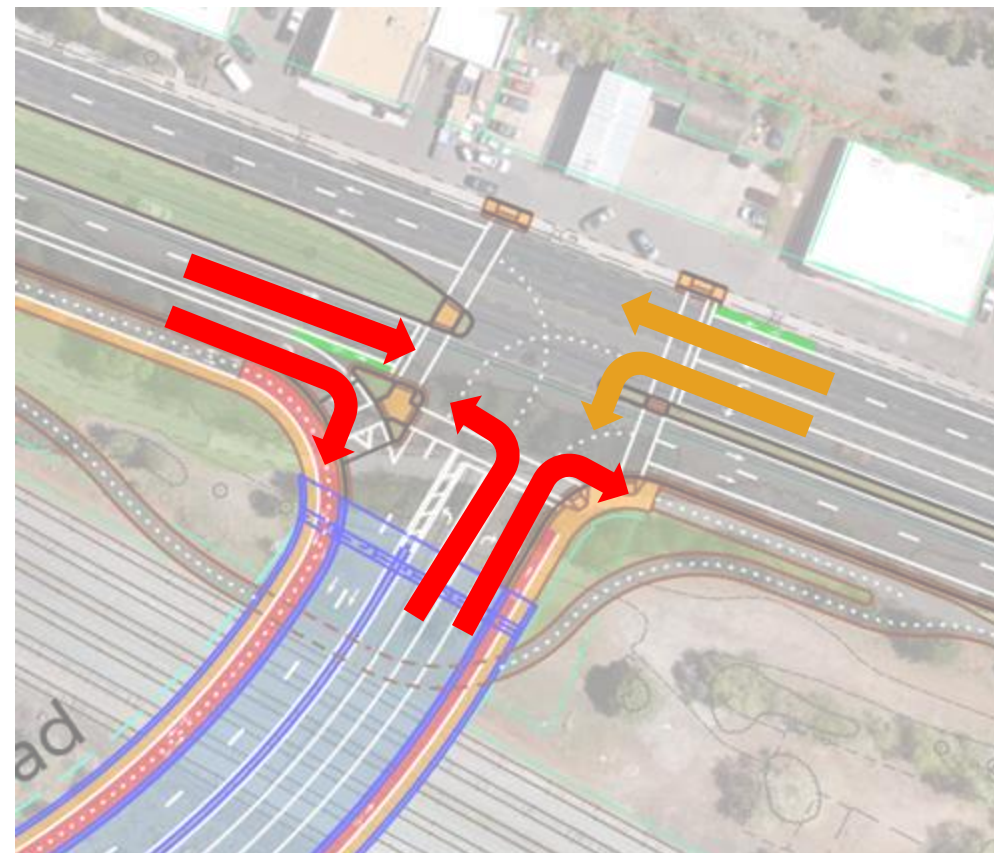


Intersection Volumes

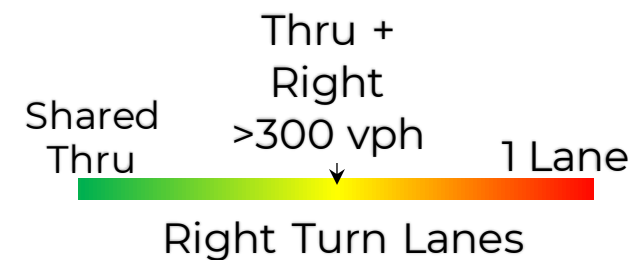
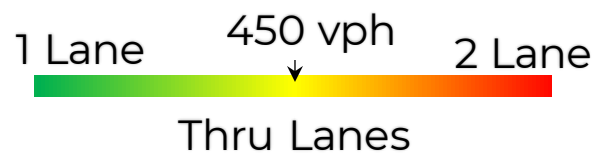
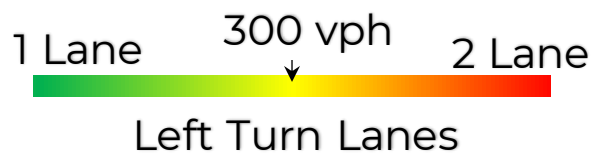
2040 – Build Traffic

- Separate Right Turn Lanes can be considered.
- Thru volumes high enough for more than (1) lane.
- Northbound Left and Right Turn volumes are high enough for Double Turn Lanes

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US Route 66 & Lone Tree Rd



Intersection Selection



Approach to Intersection Selection

What is complete:

Data
Collection

Coordination
on Regional
Transportation
Model

Coordination
with ADOT on
US-66
Alternatives

Data
Evaluation

Where is in progress:

Intersection
Type
Evaluation

Coordination
with
Transportation
Commissions
and Council

Upcoming
Public Meeting
September 30th

What's next:

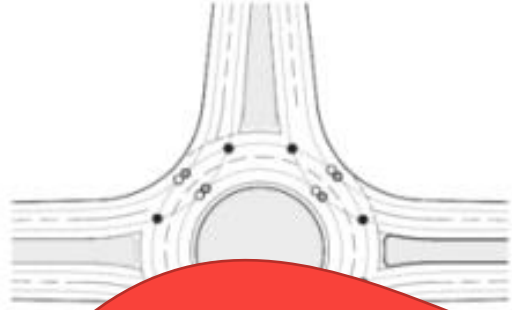
Compile
Feedback

Decide on the
Multi-Modal
Enhancements

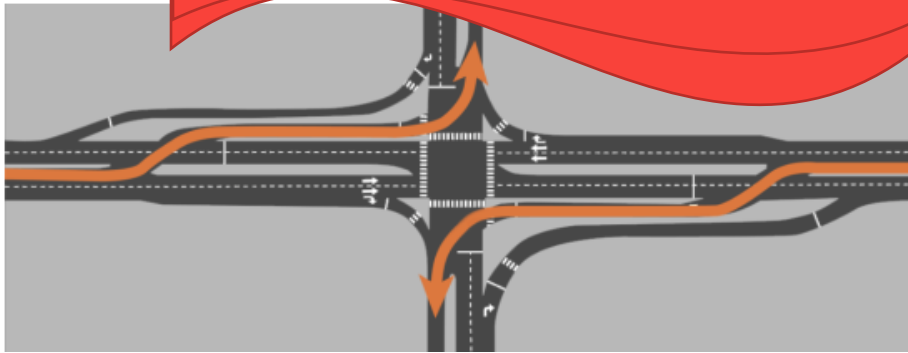
Present to
Council for
Final Decision
(October)



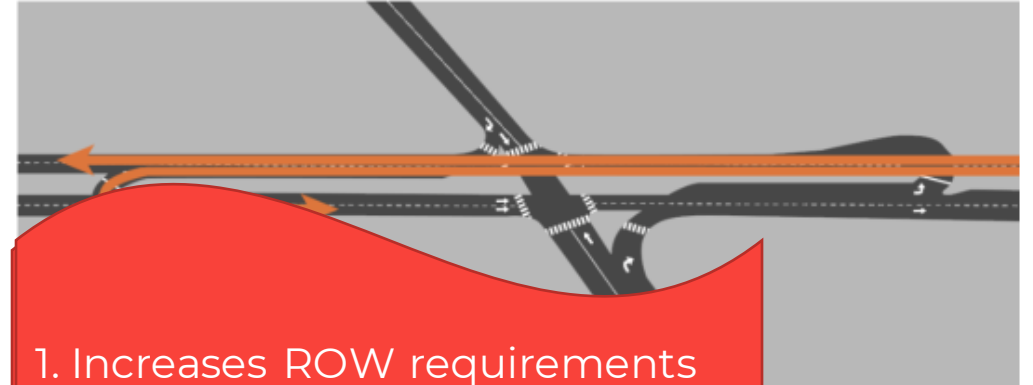
Lone Tree Road & Butler Avenue – Intersection *Non-Viable Intersections*



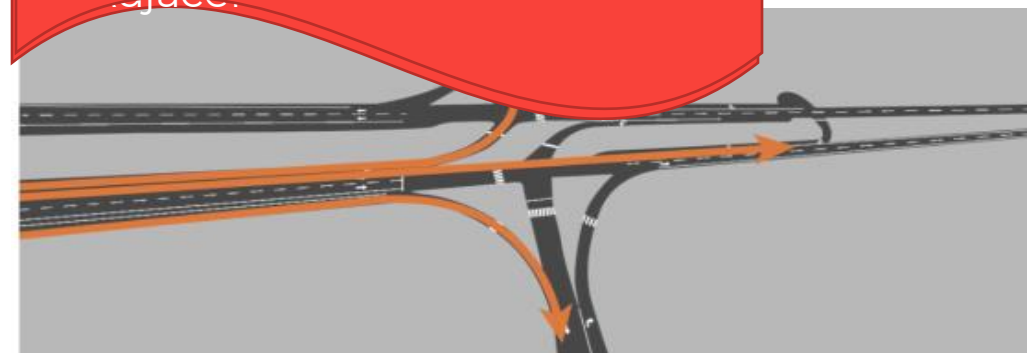
1. Best for Minor Roadways or 4-Lane Divided Highways



Displaced Left Turn



1. Increases ROW requirements
2. Useful for Urban Corridors



Restricted Crossing U-Turn



Lone Tree Road & Butler Avenue – Intersection *Viable Intersections*

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Viable base

- Efficient
- Lower
- Acco
- Addresses Multi-Modal Concerns



Options to Enhance Multi-Modal Use of Intersection



National Association of City Transportation Officials



Don't Give Up at the Intersection

Designing All Ages and Abilities Bicycle Crossings



National Association of City Transportation Officials

May 2019



(Example Only, not a Project Intersection)



Options to Enhance Multi-Modal Use of Intersection

Pavement Markings

No Stopping Zone

Bike Yield L (optional)

High Visibility Crosswalks

Protected Intersection - Green Bike Crossing

Bike Symbols w/Arrows for Direction of Travel

Sharrows for areas of Shared Vehicles/Bikes

Bikes / Intersection Markings
Spacing of lines selected to avoid wheel path



*High Visibility Crosswalks
Protected Intersection - Green Bike Crossing
Bike Symbols w/Arrows for Direction of Travel
Sharrows for areas of Shared Vehicles/Bikes*

Options to Enhance Multi-Modal Use of Intersection

Signals



*Specialty Signals with Bike Symbol
Countdown Pedestrian Signals*



Options to Enhance Multi-Modal Use of Intersection

Islands and Medians



(Source: Google Maps, Boulder, Colorado)



Separated Bike Lane

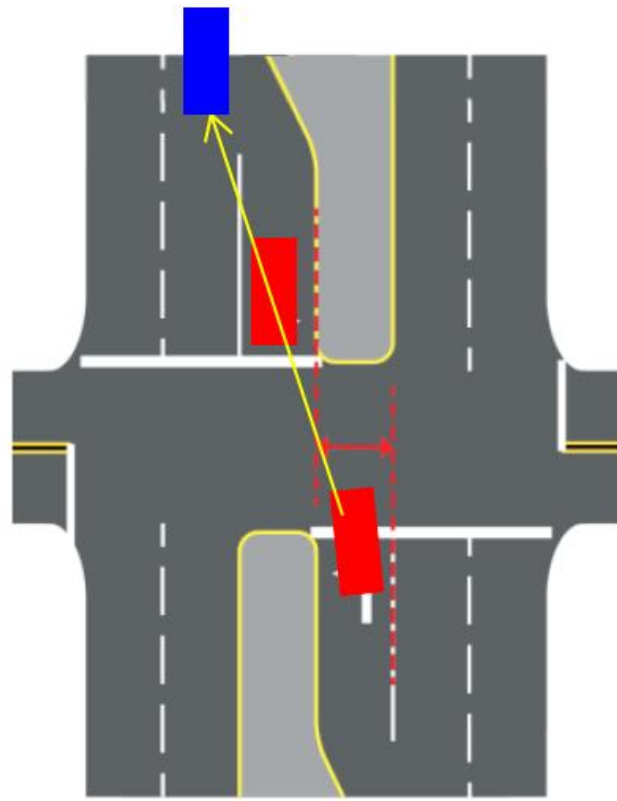


Curbing Delineators

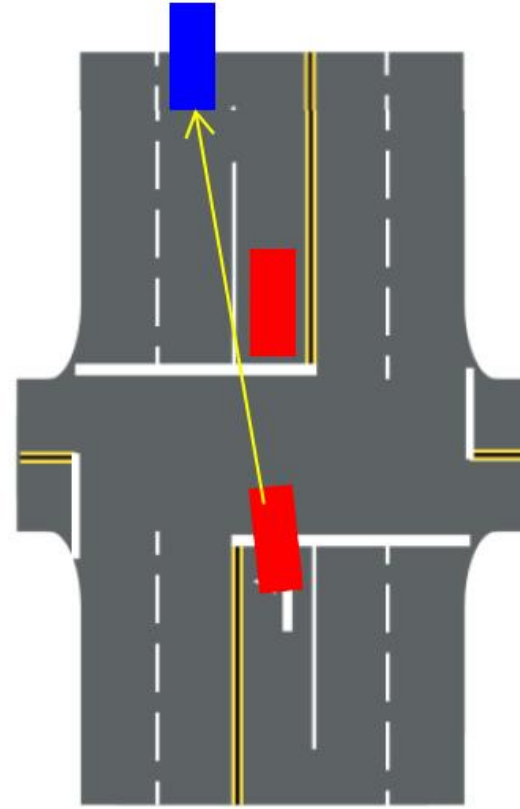


Options to Enhance Driver Safety at Intersection

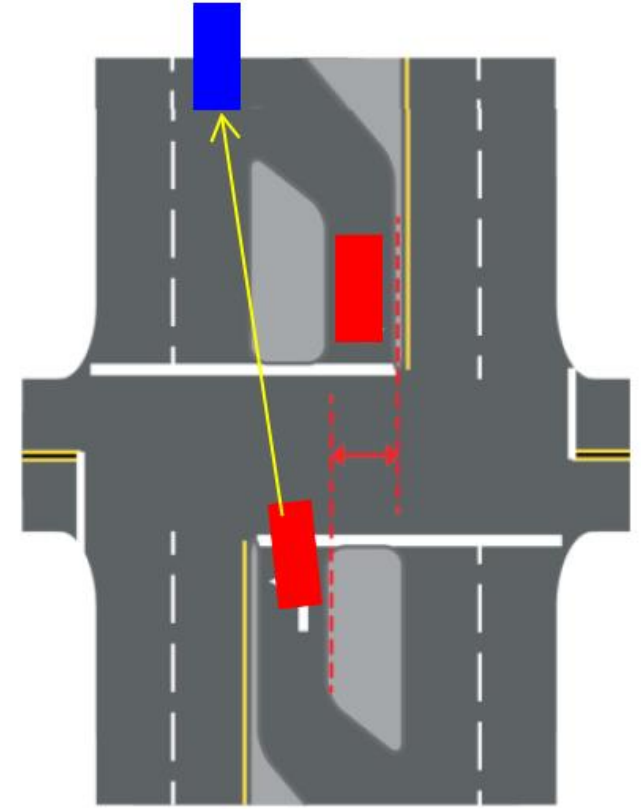
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Negative Offset



Zero Offset



Positive Offset



Lone Tree Road & Butler Avenue – Intersection Comparisons

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Traditional Intersection – Minor Enhancements

Lone Tree Road & Butler Avenue – Intersection Comparisons

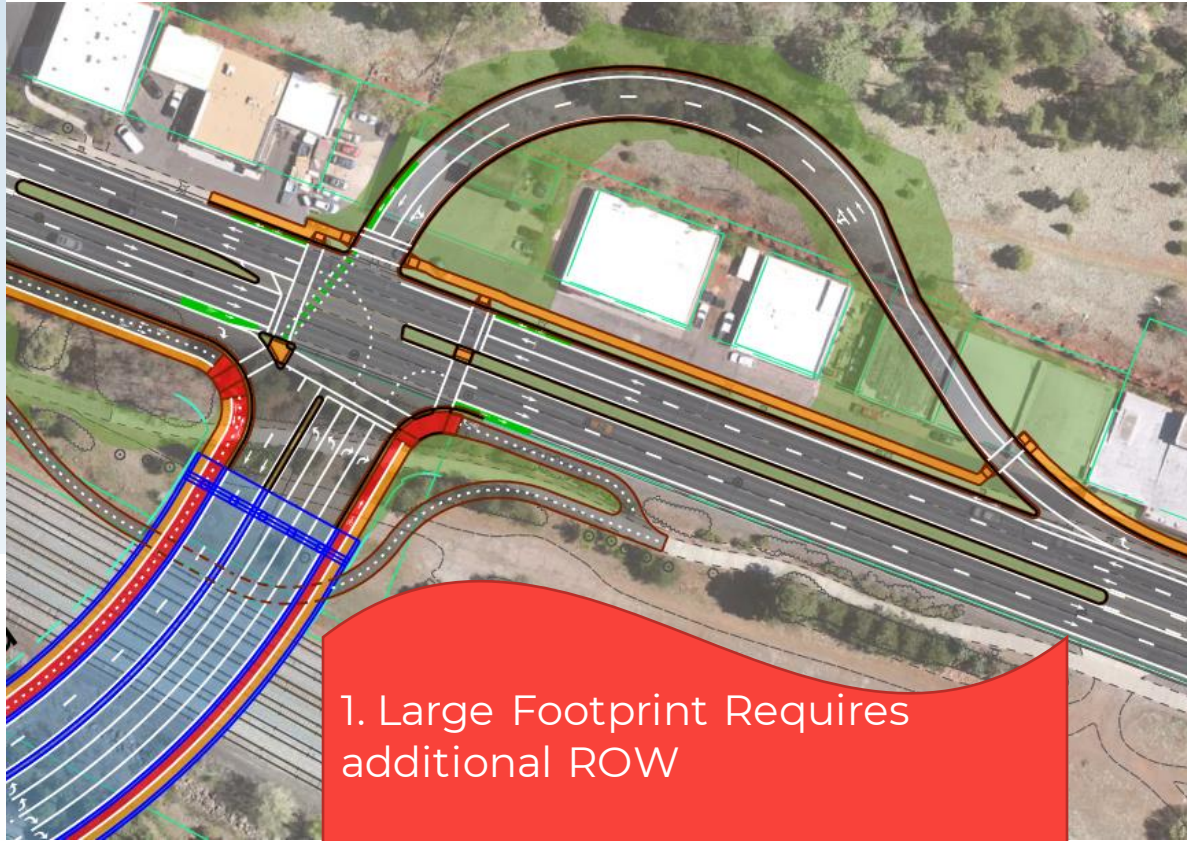
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Traditional Intersection – Full Enhancements

Lone Tree Road & US-66 – Intersection Non-Viable Intersections

Jughandle



1. Large Footprint Requires additional ROW

2. New Intersection type doesn't meet driver expectations.

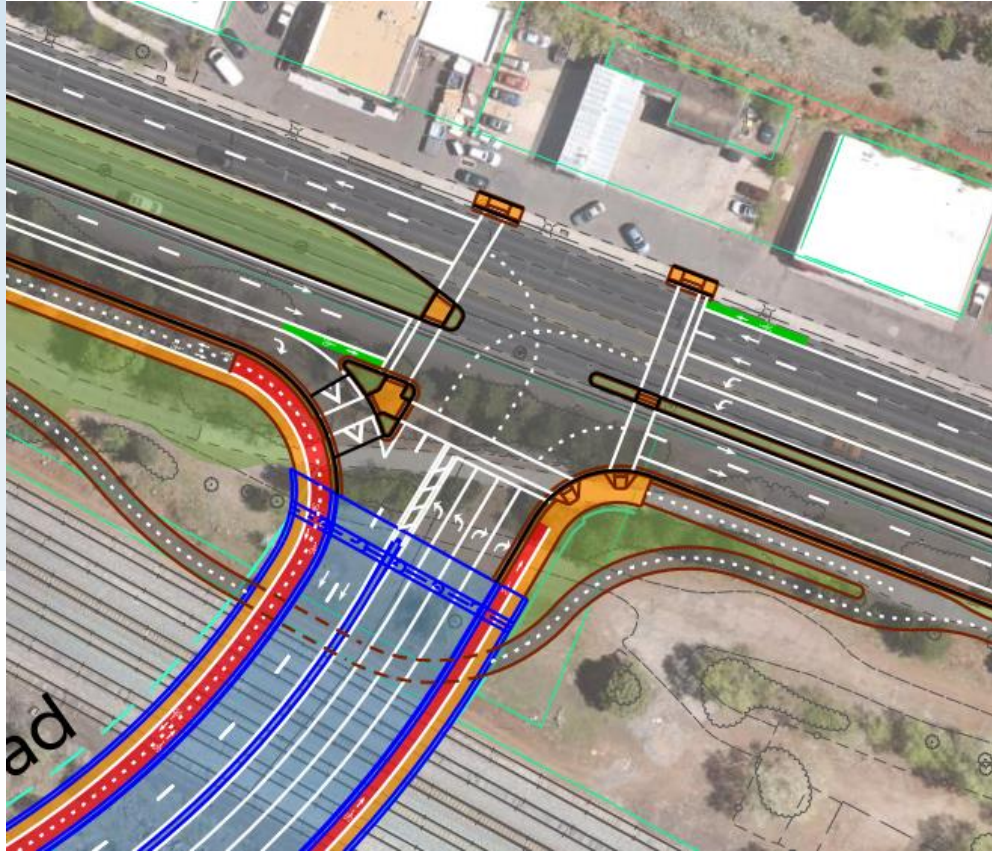
1. Large Footprint Requires additional ROW

2. Volumes are close to maximum recommended for roundabouts.

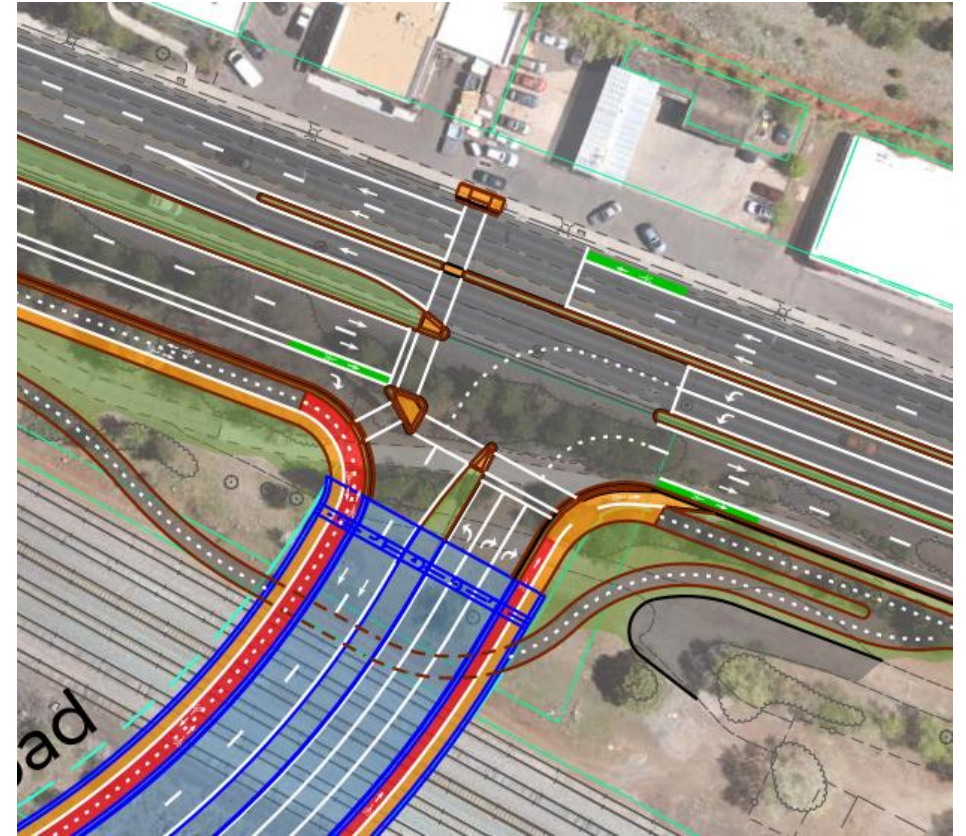


Lone Tree Road & US-66 – Intersection *Viable Intersections*

Conventional Intersection



Florida "T"



Lone Tree Road & US-66 – Intersection *Viable Intersections*

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Florida T – No Enhancements

Lone Tree Road & US-66 – Intersection *Viable Intersections*







Traditional Intersection – Minor Enhancements



Green House Gases



Estimated Reduction in Green House Gases

4-Lane Lone Tree Overpass			
Measure	2026-2040, total	2026, annual	2026-2040, annual average
Gallons of Fuel Reduced 	1,896,500	285,900	126,400
GHG emissions avoided (Tons) 	17,000	2,600	1,100
2-Lane Scenario (For Comparative Purposes)			
Gallons of Fuel Reduced 	1,164,900	122,100	77,700
GHG emissions avoided (Tons) 	10,500	1,100	700

2026 Numbers are similar to 2019 No-Growth Volumes for comparison purposes.

Summary: A 4-Lane Corridor will lower Green House Gases compared to existing conditions or a 2-Lane Corridor due to more efficient traffic operations.



Aesthetics and Civic Spaces



Aesthetic Incorporation into Design Elements

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Aesthetic Incorporation into Design Elements

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Landscaping Opportunities

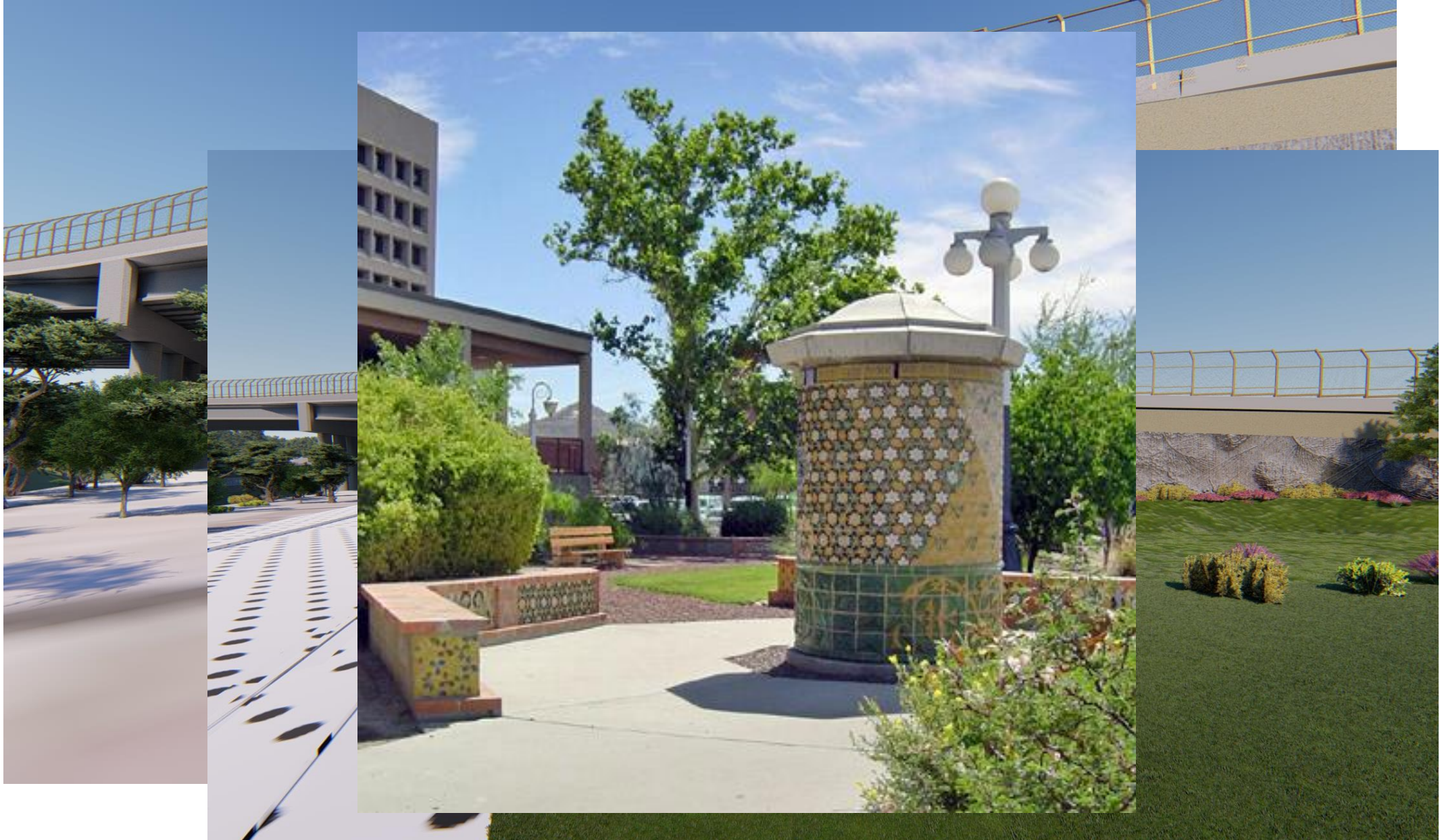


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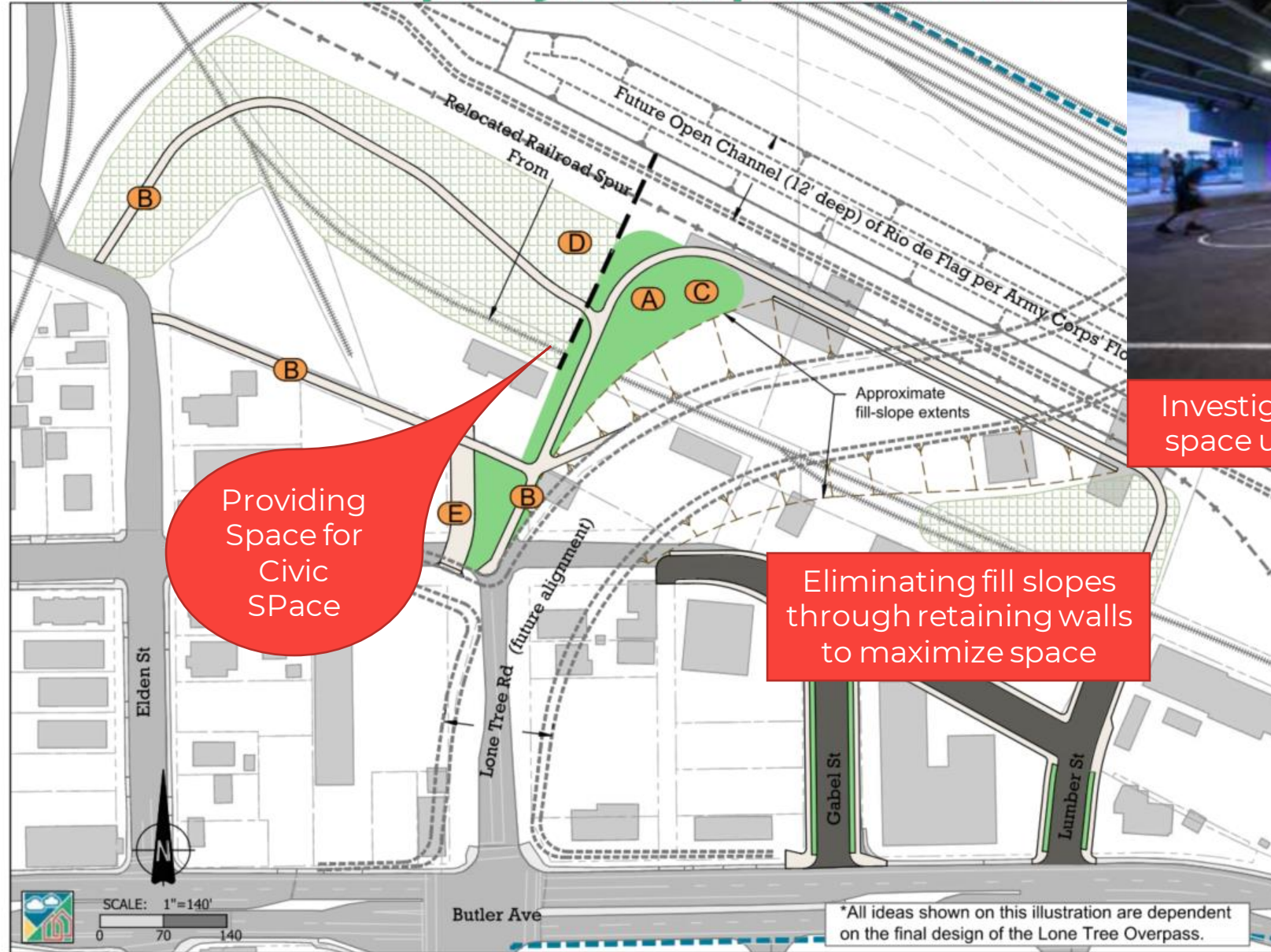
Accommodation of Future Civic Spaces

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Accommodation of Future Civic Spaces

Lone Tree Overpass Larger Park Concept Illustration Scenario 1



Investigating usable space under bridge

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Path Forward



Lone Tree Schedule

Feb 2021-Oct 2021

Predesign

- Confirm Project Assessment
- Coordinate with Stakeholders, Commissions, and Public
- Preliminary Decision Making
- Develop Initial Guaranteed Maximum Price
- Public Meeting September 30

Oct 2021-Dec 2022

Final Design

- Council Meeting in October for Approval of Final Design Amendment
- Continue Coordinating with Stakeholders, Commissions, and Public
- Finish Field Investigations
- Finalize Design
- Finalize Guaranteed Maximum Price

Dec 2022-Nov 2026

Construction

- Finalize Permits
- Obtain the Construction Maintenance Agreement
- Construct the Project



Thank you!



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