

1st Avenue: River Road to Grant Road

1st Avenue Citizens' Task Force Meeting
3/20/2025



Approval of February Meeting Minutes



Call to the Audience



Project Overview

Design Concept Report

Fall 2024

Existing Conditions Analysis



Winter 2024/2025

Framework and Goals Development



Spring/Summer 2025



Draft
Recommended
Alternative

Alternatives Development



Final
Recommended
Alternative

Continuous Public Outreach

Community
Input

Community
Input



Project Overview

Task Force Schedule for 2025

Framework and Goals Development		Alternatives Development						DCR Development
January	February	March	April	May	June	July	August	Sept. - Dec.
Draft Goals and Roadway Cross-Section	Draft Prioritization Framework and Roadway Alignment	Final Prioritization Framework and Intersection Types/Locations	Draft Roadway Design Review	Bridge and Drainage Design Review	N/A	Open House Review, Roadway Design Review and Environmental Considerations	Design Review	Design Review As-Necessary
			Draft Alignment Recommendation	Open House	No Meeting		Alignment Recommendation to DCR	Final DCR Alignment Acceptance

Key Design Strategies



Project Goals

1

Improve Safety for all users of 1st Avenue, particularly for the most vulnerable road users, such as pedestrians, bicyclists, people with disabilities, motorcyclists, and others.

2

Increase transportation options and reduce barriers on 1st Avenue by improving comfort, convenience, and accessibility for people walking, biking, and using public transportation.

3

Improve the condition of **existing infrastructure** to ensure that 1st Avenue meets community needs now and into the future.

4

Support mobility along the corridor through the efficient movement of traffic, including transit, personal, and commercial vehicles.

5

Minimize the impacts of 1st Avenue improvements on adjacent residents and businesses.

6

Enhance the **visual character** of 1st Avenue to support economic and community vitality.

Key Design Strategies (example)

Project Goal

- Improve Safety for all users of 1st Avenue, particularly for the most vulnerable roadway users

Key Design Strategies

- Employ the Safe Systems Approach principles in corridor design
- Provide physical separation between bicyclists and pedestrians and motor vehicles
- Manage vehicle speeds to reduce crash severity
- Provide adequate and continuous lighting along the corridor, particularly in the areas with the highest pedestrian activity
- Ensure that pedestrians and cyclists have access to frequent safe crossings
- Design intersections and upgrade traffic signals to reduce conflicts in space and time
- Minimize distances between bus stops and controlled crossings

Improve Safety

Employ the Safe Systems Approach principles in corridor design

Provide physical separation between bicyclists and pedestrians and motor vehicles

Manage vehicle speeds to reduce crash severity through using context-sensitive roadway design principals and establishing appropriate speed limits that balance safety and mobility.

Provide and maintain adequate and continuous lighting along the corridor, particularly in the areas with the highest pedestrian activity

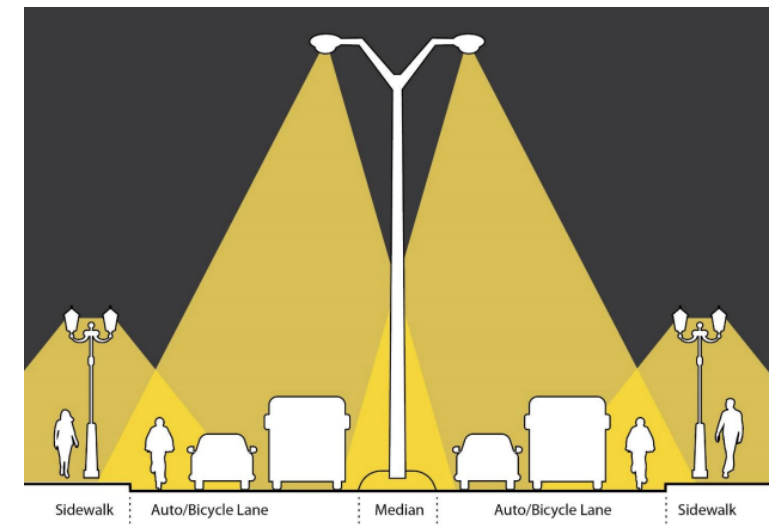
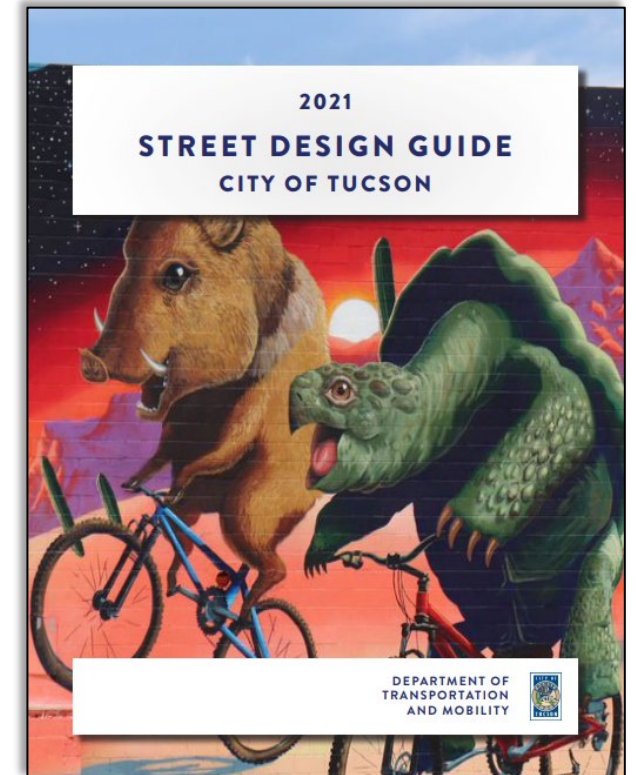
Ensure that pedestrians and cyclists have access to frequent and safe crossings

Design intersections and upgrade traffic signals to reduce conflicts in space and time, including consideration of protected left-turn phasing as appropriate

Install raised medians and/or pedestrian refuge islands at appropriate locations

Coordinate with emergency responders and public safety officials to ensure the 1st Avenue project improves safety and supports efficient and reliable emergency response

Minimize distances between bus stops and controlled crossing locations



Increase Transportation Options

Install wide, continuous, and accessible sidewalks

Separate sidewalks from roadway to the greatest extent feasible with a planting/amenity zone and bicycle lanes

Ensure that pedestrians and cyclists have access to frequent safe crossings.

Provide the greatest amount physical separation between bicyclists and motor vehicles, including through installation of protected bike lanes

Upgrade transit stops and add amenities so that stops are accessible, shaded, safe and comfortable



Upgrade Existing Infrastructure

Upgrade drainage infrastructure to provide all-mode access during more frequent/common storm events

Replace and upgrade the 1st Avenue bridge over the Rillito River to a structural design life of 75 years, and to improve functionality to meet current Complete Streets design practices

Upgrade intersections and communications to support integration of next generation smart traffic signals

Use high-quality, durable materials to reduce long-term maintenance needs on the corridor

Reconstruct pavement roadway, sidewalks, bicycle lanes, and install bus shelters to improve ride quality, comfort, accessibility and longevity of public infrastructure



Support Mobility

Upgrade intersections and communications to support integration of next generation smart traffic signals

Implement Access Management Strategies, including installation of raised medians and driveway consolidation where possible

Evaluate strategies, such as addition turn lanes and improved signal operations, to improve functionality of the corridor to efficiently and safely accommodate all modes at major intersections, accounting for current and future traffic volumes

Incorporate bus pullouts at high demand locations



Minimize Impacts

Align the 1st Avenue corridor to minimize acquisitions of structures and properties

Support businesses during construction through partnership with the RTA Mainstreet program

Maintain access for residents, businesses, and neighborhoods along 1st Avenue



Visual Character

Incorporate Green Stormwater Infrastructure (GSI) best practices to use stormwater as a resource to support long-term sustainability trees and other landscape enhancements

Use drought-tolerant, locally sourced native landscaping to match the desert environment and improve survivability

Utilize bridge and other infrastructure elements to enhance the visual character of the corridor by incorporating community-supported public art and other aesthetic enhancements

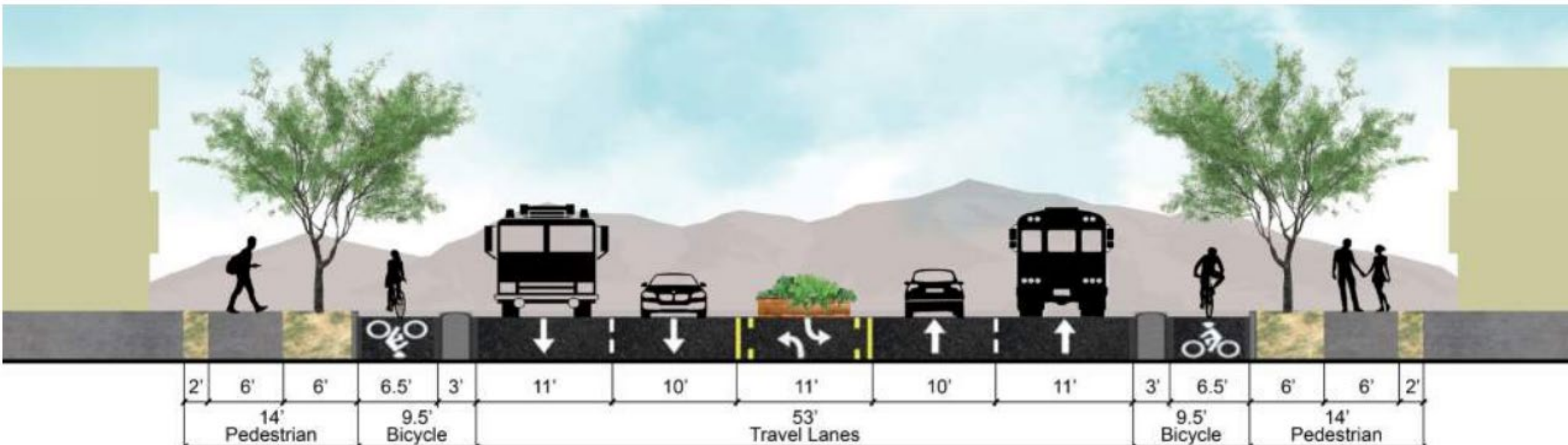


Preliminary Intersection Alternatives

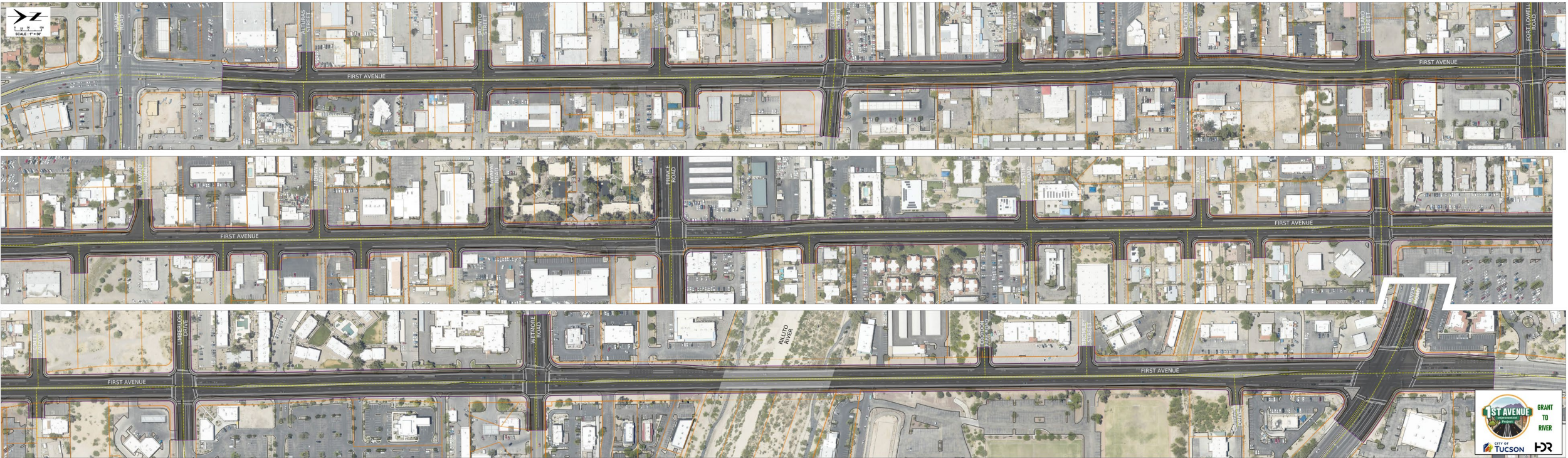


City of Tucson Cross-Section

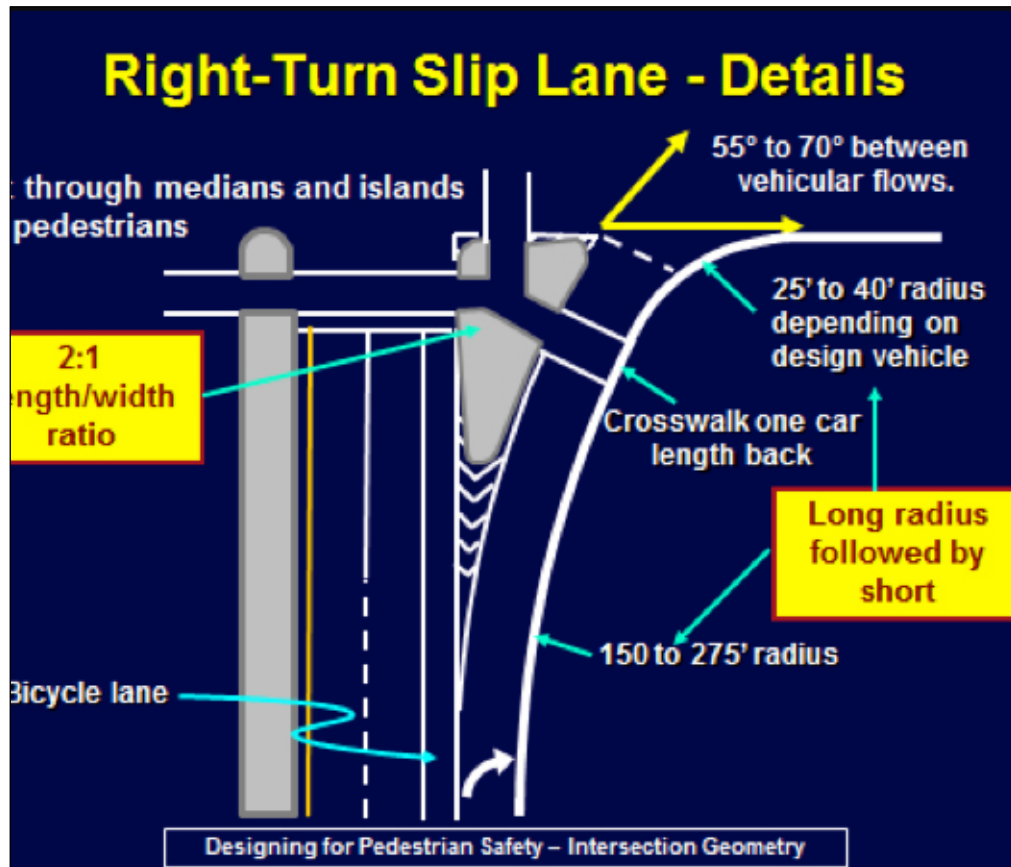
Section 14. 100-ft ROW, urban 5-lane, 2-way street, pedestrian island, curb-protected bicycle lane



1st Ave Corridor Map



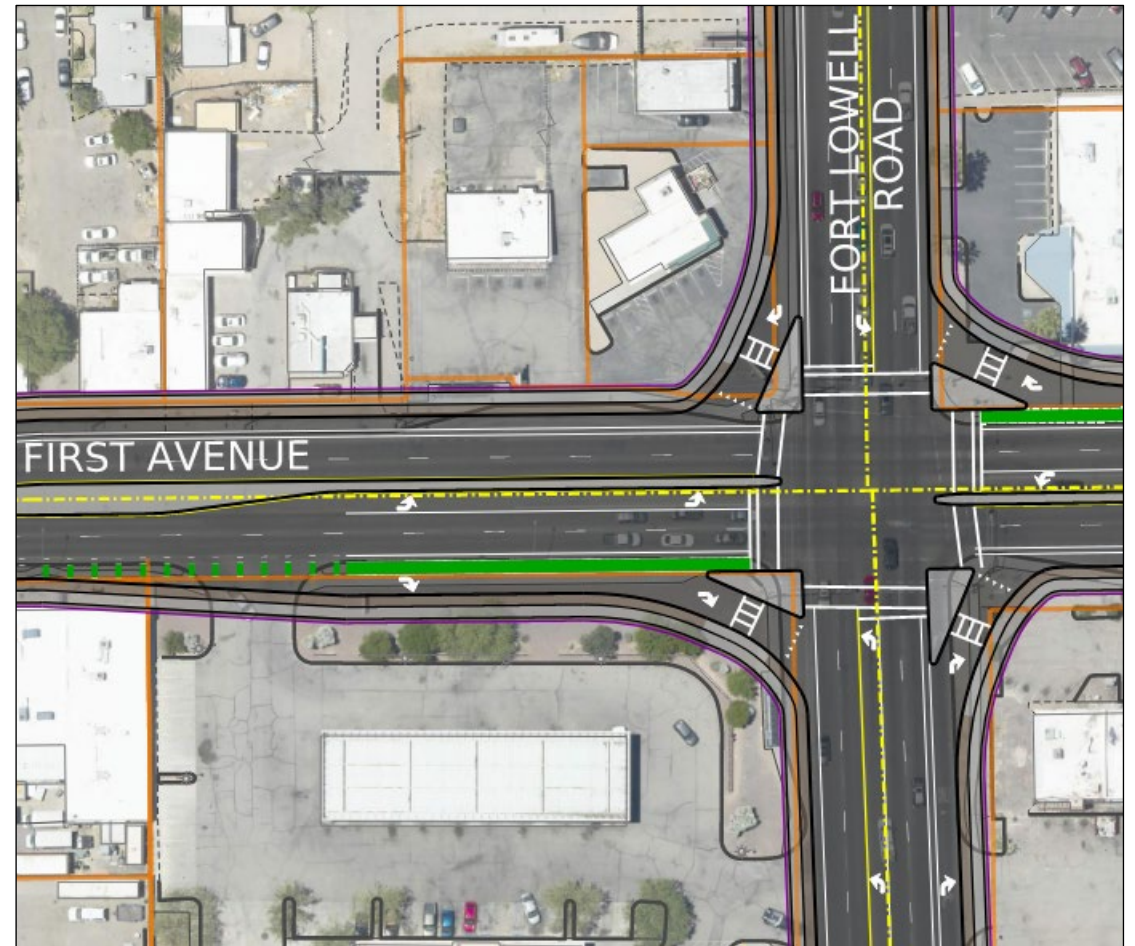
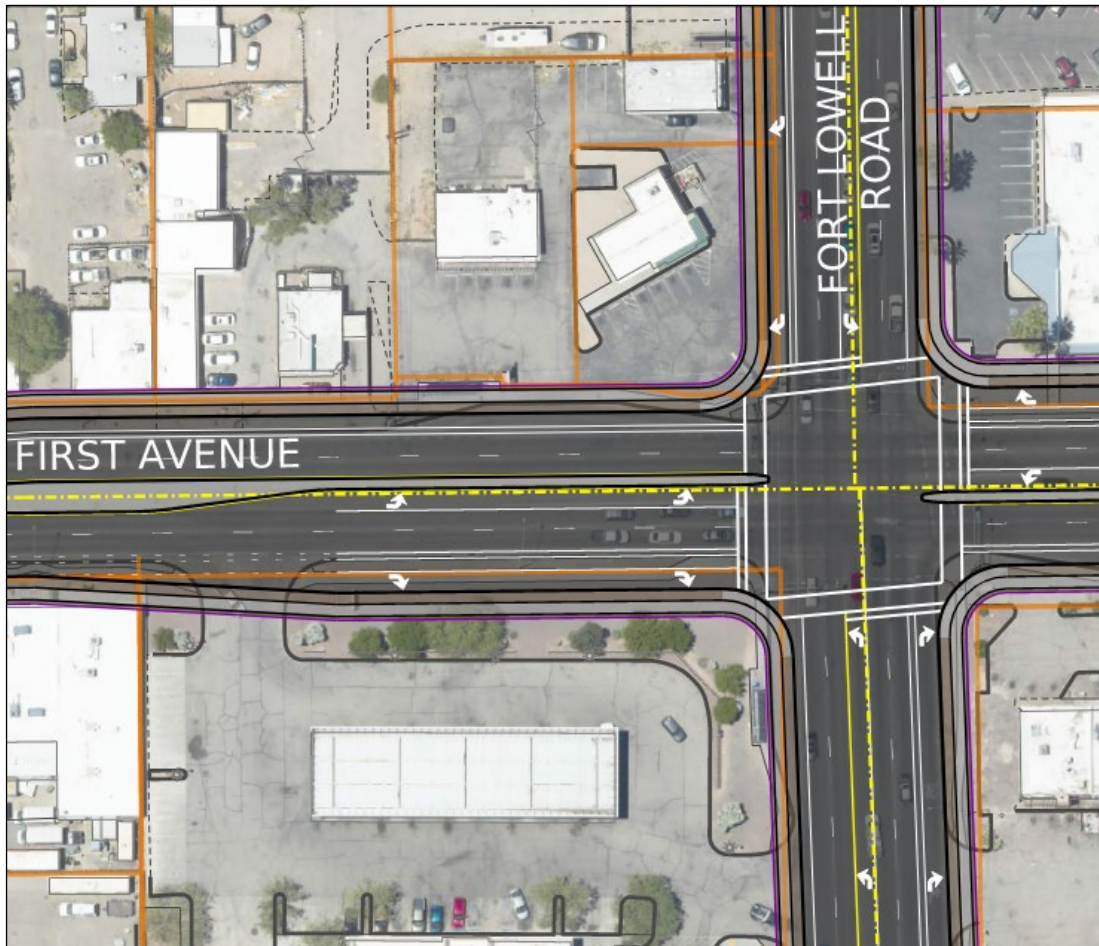
Alternative Intersection Layout: Channelized Right Turn (Slip Lane)



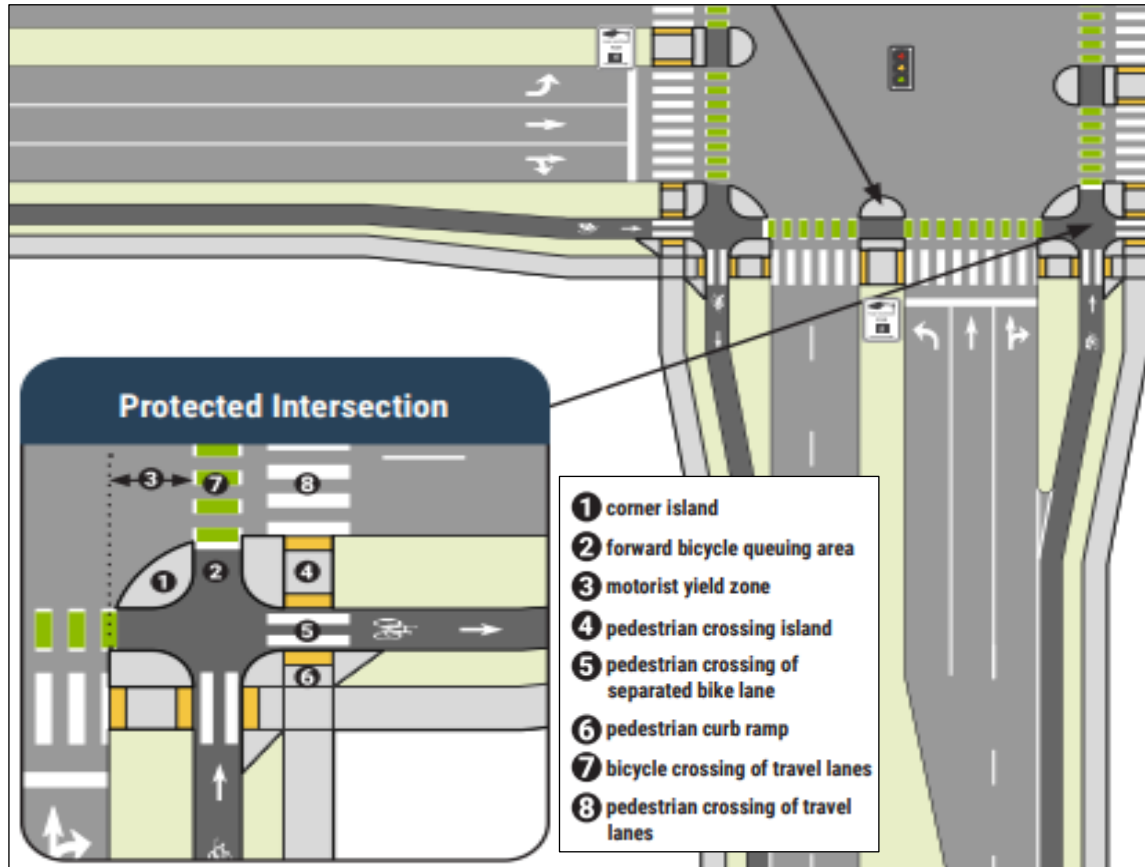
Design Considerations

- Reduces conflicts to a single point for right-turning vehicles and improves visibility
- Reduces pedestrian crossing distances and times
- Accommodates large design vehicles
- Potential to slow speeds of right-turning vehicles
- Right turn is a controlled movement and not a “free-flow” condition.
- Increases footprint size and Right-of-Way impact to adjacent property

Alternative Intersection Layout: Channelized Right Turn (Slip Lane) 1st Avenue and Ft Lowell Road



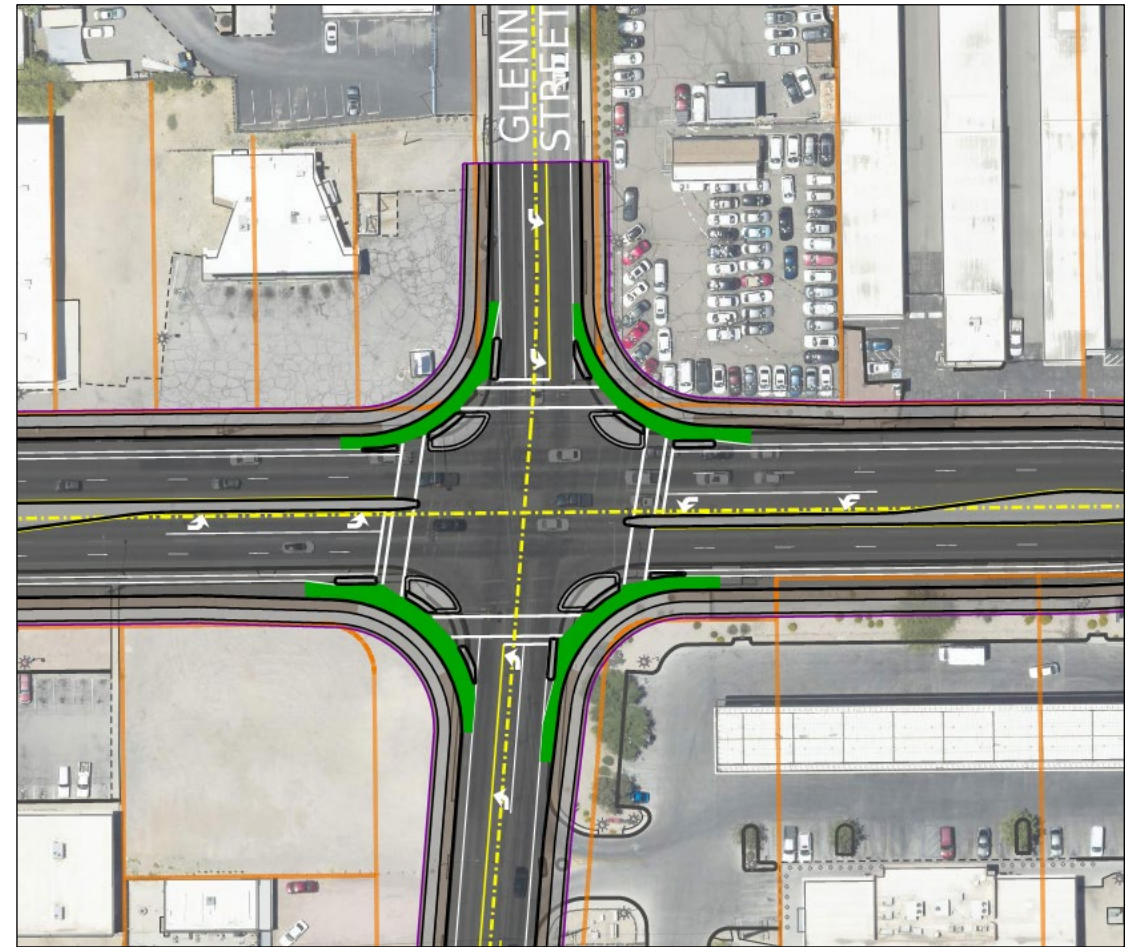
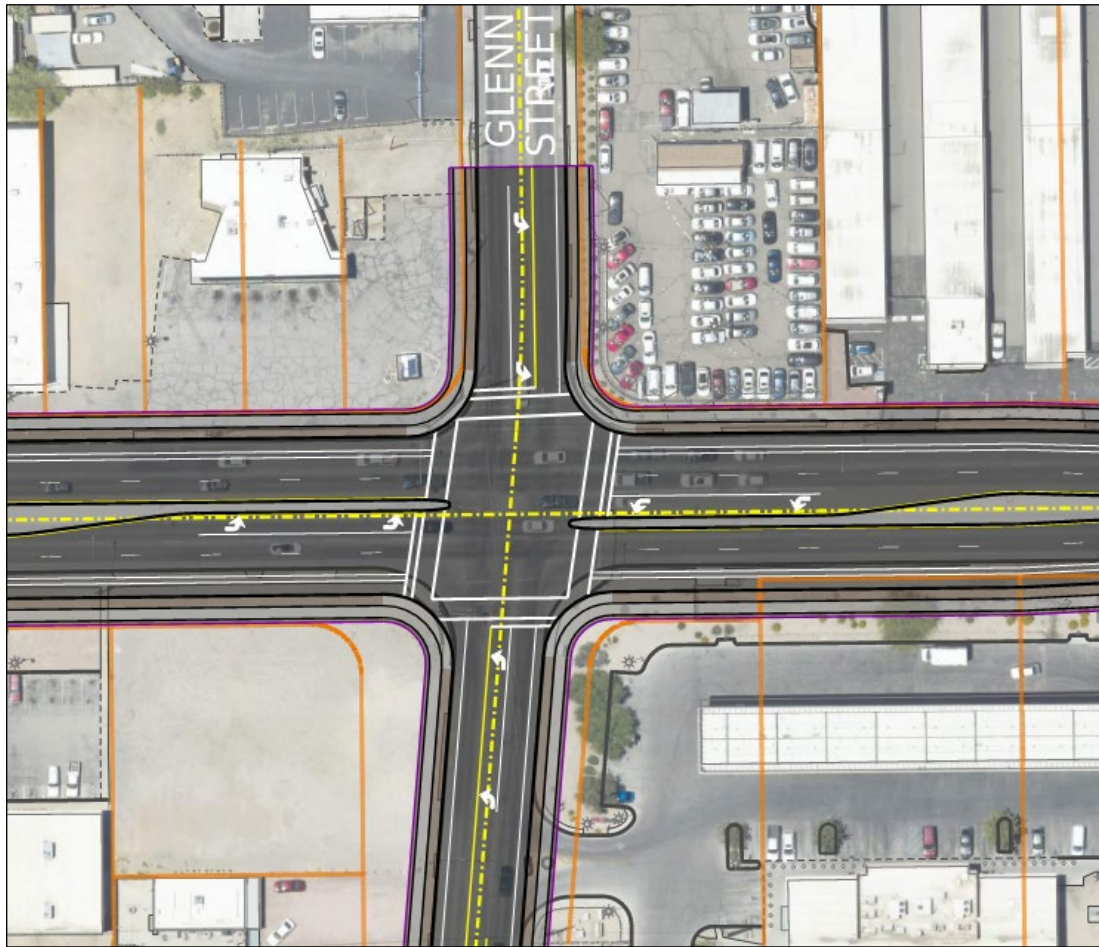
Alternative Intersection Layout: Protected Intersection



Design Considerations

- Provides greater physical separation from vehicles at the intersection
- Reduces effective corner radius for smaller vehicles which slows turning speeds
- Accommodates large design vehicles utilizing raised mountable concrete aprons
- Increases the potential conflict area between bikes and pedestrians
- Increases footprint size and Right-of-Way impact to adjacent property

Alternative Intersection Layout: Protected Intersection 1st Avenue and Glenn Street





Draft Intersection Evaluation Matrix

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Goal	Strategy	Metric	Criteria	Performance		
				Most Desirable (3)	Desirable (2)	Least Desirable (1)
Improve Safety	Segment Strategies	Speed Management	Traffic Calming Measures	>3 Measures	2 Measures	1 Measure
		Street Lighting	Lighting Type	Roadway+Sidewalk	Roadway Only	Spot Locations Only
		Driveway Design	Sidewalk Setback	>80%	65-80%	50-65%
		Crossing Frequency	Distance	1/8 Mile	1/4 Mile	1/2 Mile
	Intersection Strategies	Median Type	Median Protection	Continuous Median	Refuge Island	TWLTL
		Left Turn Movements	Separate / Sight Distance	Protected Phase	Positive Offset	N/A
		Pedestrian Crossing	Pedestrian Exposure	<80'	80'-100'	>100'
Intersection Operations			Treatments	>3 Treatments	2 Treatments	1 Treatment
Safety Weight 5X - Average Score						
Increase Transportation Options	Pedestrian Strategies	Sidewalk Width	Traversable Width	>8'	6'-7'	4'-5'
		Sidewalk Buffer	Buffer Width	>6'	5'	<4'
	Bicycle Strategies	Bicycle Separation	Buffer Type	Vertical Separation	Buffer Separation	Traditional Bike Lane
		Protected Intersection	# of Intersections	Major and Minor	Minor	N/A
	Ped + Bike +Transit	Shade	% Cover	>20%	10-20%	<10%
		Upgraded Stops	# of Stops	>60%	40-60%	<40%
	Transit Strategies	Proximity to Crossing	Distance	<150'	250'	>300'
Bus Pullout (Dedicated Stop)		Transit Demand	High Demand	Medium Demand	Low Demand	
Transportation Options Weight 4.5X - Average Score						
Upgrade Existing Infrastructure	Drainage	Accommodate Storm Event	Scale of Improvement	Meets City Criteria	Improvement over Existing Condition	Maintains Existing Conditions
	Landscape Areas	Materials	Type	Hardscape (Concrete, Paver, Asphalt)	Natural (Rock, Vegetation)	No Treatment
	Bridge	Replace Existing Structure	Utilization and Physical Separation	All Users with Full Separation	All Users With Traditional Separation	Minimal Accommodation (Existing Condition)
	Pavement	Pavement Treatment	Constructed Alternative	Full Depth	Mill/Overlay	Surface Treatment
	ITS	Traffic Signal Technology	Treatments	Transit Signal Priority	Adaptative System	Traditional System
			Emerging Technologies	Dedicated Space	N/A	None
	Utilities	Utility Location	Location	All Behind Sidewalk	Adequate Space in Landscape Strip	Encroach into Sidewalk
Infrastructure Condition Weight 4.375X						
Support Mobility	Motor Vehicular	Level of Service (LOS)	Intersection LOS D	All Int Mov at LOS D or better	LT at LOS E and TH at LOS D or better	All Int Mov at LOS E or better
	Transit	Travel Time	% from existing	<10%	10%-20%	>30%
		Bus Pullout (Dedicated Stop)	# of Stops	All Intersection Stops	High Boarding and Alighting	Major Intersections
	Access Management	Median Openings	Distance	660 ft	330 ft	No Median (TWLTL)
Support Mobility Weight 4X						
Minimize R/W Impacts	Properties and Structures	Acquisitions/building impacts	# of impacts	No Impact	ROW Impacts	Structure Impacts
	Business Access	Vehicular Access to Properties	Median Opening / U-Turn Opportunity	TWLTL	Mid-Block	Signal Only
	Access during construction	Construction impacts	% impacts	Low	Medium	High
Minimize Impact Weight 4X						
Enhance Visual Character	Landscape Strategies	GSI	Pavement Area	>5%	1-5%	<1%
	Public Art	Elements	# of elements	>50%	50-20%	<20%
Visual Character Weight 3.375X						

Pedestrian Crossing/Exposure

Conventional Intersection



Protected Intersection



Metric	Criteria	Performance			
		Most Desirable (3)	Desirable (2)	Least Desirable (1)	Intersection A Score
Pedestrian Crossing	Pedestrian Exposure	<80'	80'-100'	>100'	2

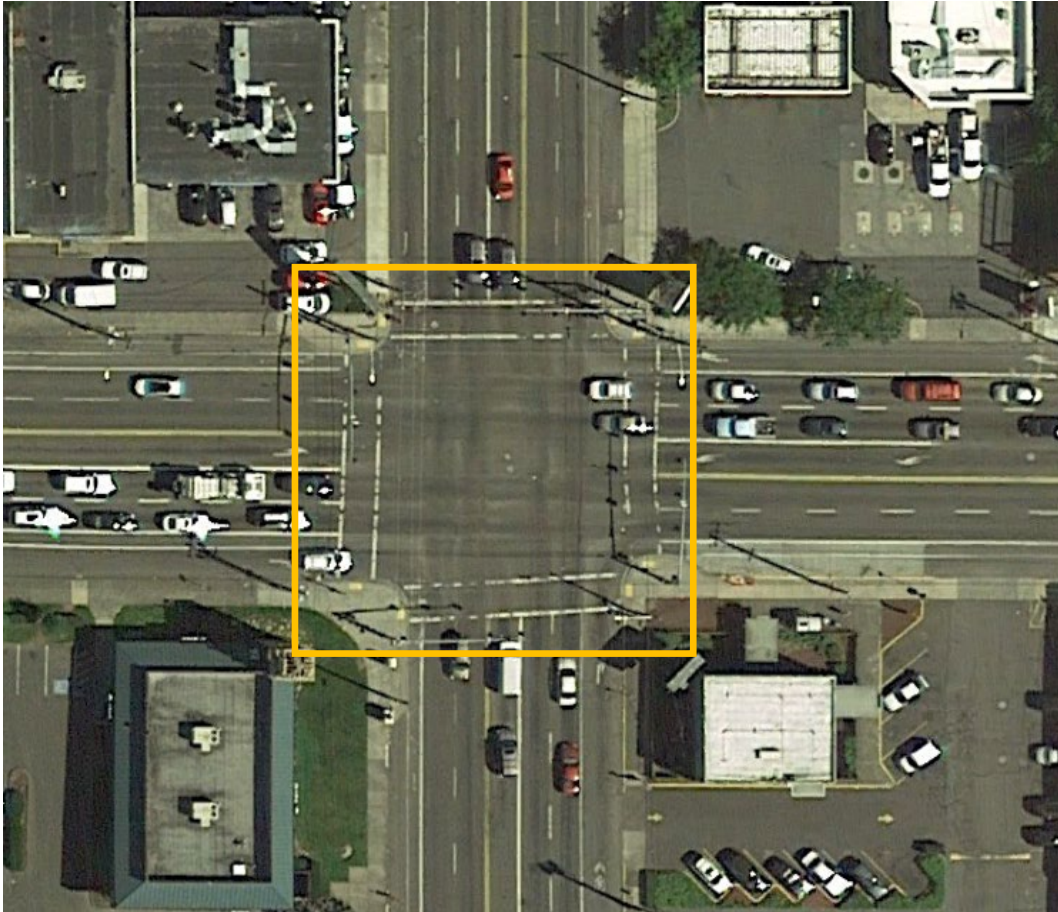
Metric	Criteria	Performance			
		Most Desirable (3)	Desirable (2)	Least Desirable (1)	Intersection B Score
Pedestrian Crossing	Pedestrian Exposure	<80'	80'-100'	>100'	3

Intersection Treatments

- Undefined Crossing at Intersections
- Bicycle Clearance Time
- Motor Vehicle Right-Turns
- Turning Motorists Crossing Bicycle Path
- Lane Change Across Motor Vehicle Travel Lanes
- Riding Between Travel Lanes, Lane Additions, or Lane Merges



Undefined Crossing at Intersections



No Treatment



Biking Pathway through the intersection

Riding Between Travel Lanes, Lane Additions, or Lane Merges

Treatment: Protected Bike Lanes with low vehicles speeds in conflict areas



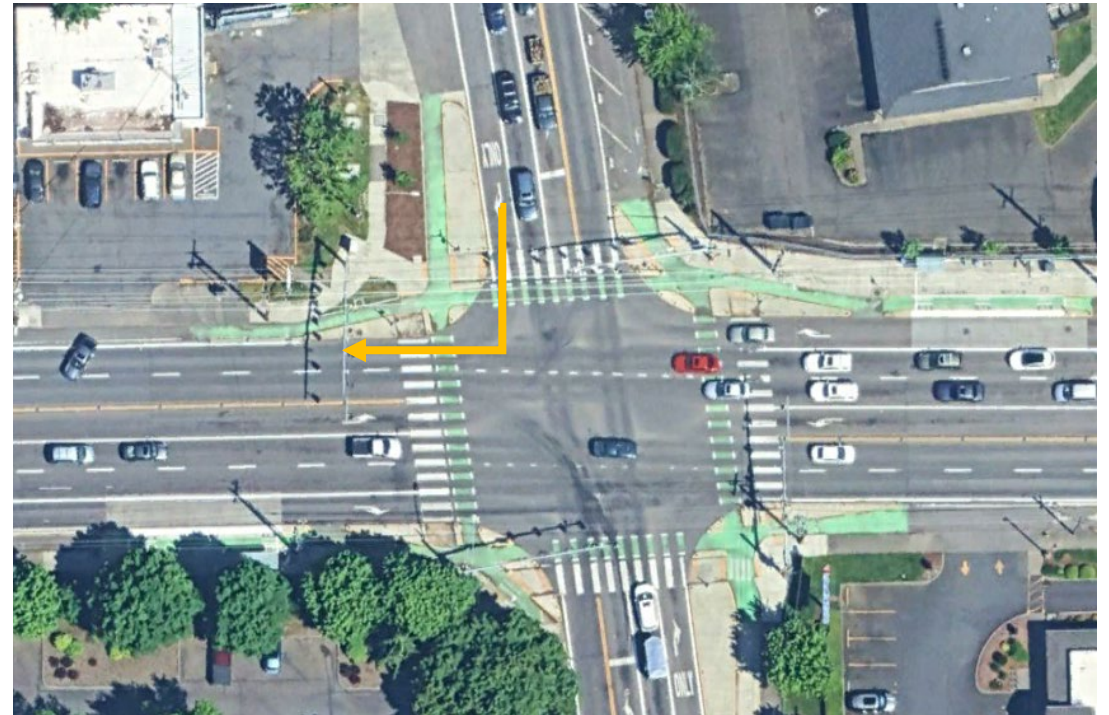
Motor Vehicle Right-Turns

Conventional Intersection



No Treatment

Protected Intersection



Low Speed Right Turn Movement

Intersection Evaluation

Conventional Intersection

Metric	Criteria	Performance			
		Most Desirable (3)	Desirable (2)	Least Desirable (1)	Intersection A Score
Pedestrian Crossing	Pedestrian Exposure	<80'	80'-100'	>100'	2
Intersection Operations	Treatments	>3 Treatments	2 Treatments	1 Treatment	1
Level of Service (LOS)	Intersection LOS D	All Int Mov at LOS D or better	LT at LOS E and TH at LOS D or better	All Int Mov at LOS E or better	2
Acquisitions/building impacts	Type of impacts	No Impact	ROW Impacts	Structure Impacts	3

Protected Intersection

Metric	Criteria	Performance			
		Most Desirable (3)	Desirable (2)	Least Desirable (1)	Intersection A Score
Pedestrian Crossing	Pedestrian Exposure	<80'	80'-100'	>100'	3
Intersection Operations	Treatments	>3 Treatments	2 Treatments	1 Treatment	3
Level of Service (LOS)	Intersection LOS D	All Int Mov at LOS D or better	LT at LOS E and TH at LOS D or better	All Int Mov at LOS E or better	2
Acquisitions/building impacts	Type of impacts	No Impact	ROW Impacts	Structure Impacts	2

Example Decision Matrix Calculation

Goal	Strategy	Metric	Criteria	Performance	
				Intersection 1	Intersection 2
Improve Safety	Segment Strategies	Speed Management	Traffic Calming Measures		
		Street Lighting	Lighting Type		
		Driveway Design	Sidewalk Setback		
		Crossing Frequency	Distance		
		Median Type	Median Protection		
	Intersection Strategies	Left Turn Movements	Separate / Sight Distance		
		Pedestrian Crossing	Pedestrian Exposure	2	3
		Signal Operations	Treatments	1	3
Average Score			1.5	3	
Increase Transportation Options	Pedestrian Strategies	Sidewalk Width	Traversable Width		
		Sidewalk Buffer	Buffer Width		
	Bicycle Strategies	Bicycle Separation	Buffer Type		
		Protected Intersection	# of Intersections		
	Ped + Bike +Transit	Shade	% Cover		
	Transit Strategies	Upgraded Stops	# of Stops		
		Proximity to Crossing	Distance		
	Average Score			N/A	N/A
Upgrade Existing Infrastructure	Drainage	Accommodate Storm Event	All Weather		
	Sidewalk	Continuous and Accessible	Length		
	Bridge	To Be Determined			
	Pavement	To Be Determined			
	ITS	Traffic Signal Technology	Treatments		
			Emerging Technologies		
	Utilities	Utility Corridor	Width		
			Average Score		
Support Mobility	Motor Vehicular	Level of Service (LOS)	Intersection LOS	2	2
	Transit	Travel Time	% from existing		
		Bus Pullout (Dedicated Stop)	# of Stops		
	Access Management	Median Openings	Distance		
Average Score			2	2	
Minimize R/W Impacts	Properties and Structures	Acquisitions/building impacts	type of impacts	3	2
	Business Access	Vehicular Access to Properties	Median Opening / U-Turn Opportunity		
	Access during construction	Construction impacts	% impacts		
			Average Score		
Enhance Visual Character	Landscape Strategies	GSI	Pavement Area		
	Public Art	Elements	# of elements		
	Average Score			N/A	N/A

Example Decision Matrix Calculation (Cont.)

Goal	Weight	Conventional Intersection		Protected Intersection	
		Average	Weighted AVG	Average	Weighted AVG
Improve Safety	5X	1.5	7.5	3.00	15.00
Increase Transportation Options	4.5X	N/A	N/A	N/A	N/A
Upgrade Existing Infrastructure	4.375X	N/A	N/A	N/A	N/A
Support Mobility	4X	2.0	8.0	2.00	8.00
Minimize R/W Impacts	4X	3.0	12.0	2.00	8.00
Enhance Visual Character	3.375X	N/A	N/A	N/A	N/A
Total		6.5	27.50	7.0	31.00

Preferred Bridge Alternative



Bridge Selection Report



Initial Bridge Selection Report

1st Avenue Bridge over the Rillito River

Tucson, Pima County, Arizona

City of Tucson Project No. 230193

Prepared by:

HDR Engineering
1 S. Church Ave, Suite 1400
Tucson, AZ 85701



Prepared for:

City of Tucson
Department of Transportation & Mobility



January 27, 2025

Existing 1st Avenue Bridge Background

- Constructed in 1961
- 64' Wide X 363' Long
- Six spans utilizing inverted U-girders
- 2'-8" Superstructure Depth
- Outside girders elevated to create sidewalk
- Combination guardrail and pedestrian handrail is bolted directly to the outside girders
- Bridge Cross Section: Four 12' Vehicle Lanes, 4' Shoulder and 4' Sidewalk Each Side
- Pier Caps and Abutments are Cast-in-Place concrete supported on driven steel piles



Preferred Bridge Alternative

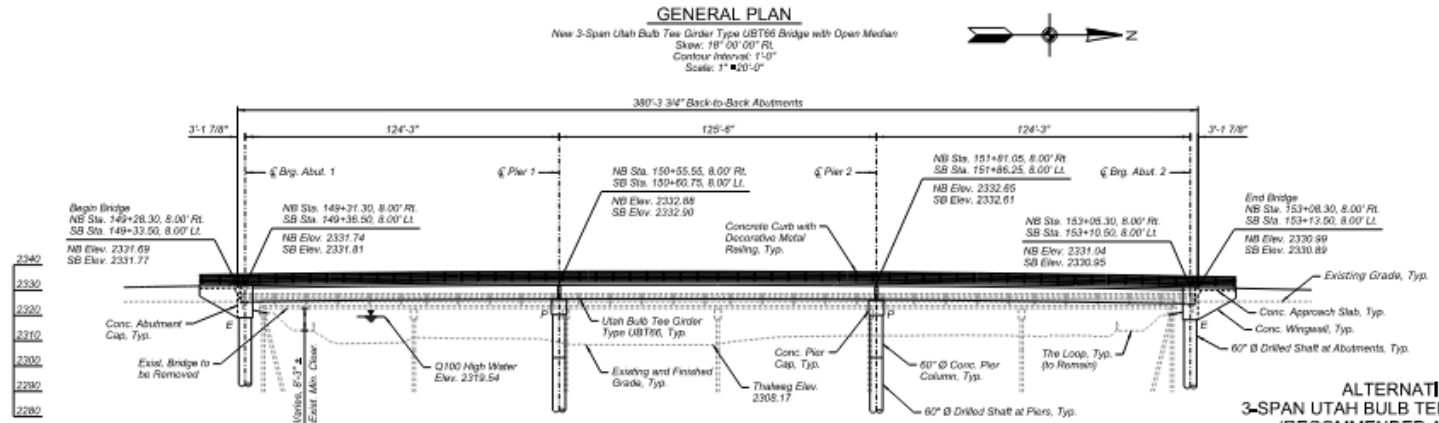
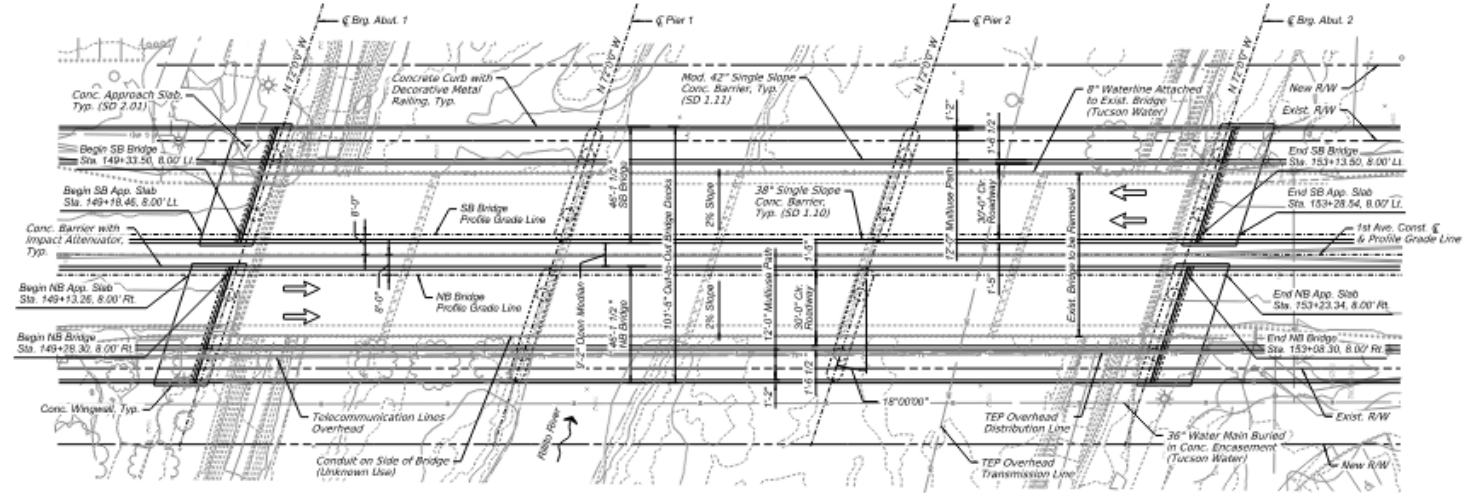
Initial Bridge Selection Report
1st Avenue Bridge over the Rinco River



Contents

1	Introduction	1
2	Background Data/Existing Conditions	4
2.1	Existing Roadway Geometry and Condition	4
2.2	Existing Bridge Geometry and Condition	4
2.3	Existing Hydraulics	7
2.4	Existing Utilities	7
2.5	Existing Right of Way	8
3	Project Scope	9
3.1	Proposed Roadway Geometry	10
3.2	Proposed Bridge Geometry	10
3.3	Design Specifications and Loadings	12
4	Bridge Alternatives	12
4.1	Precast Prestressed Concrete Utah Bulb Tee Girder Alternatives	13
4.1.1	Alternative 1A: 3-Span UBT66 Girder Bridge	13
4.1.2	Alternative 1B: 4-Span UBT50 Girder Bridge	15
4.2	Precast Prestressed Concrete AASHTO Box Beam Alternatives	17
4.2.1	Alternative 2A: 3-Span AASHTO Type BIV Box Beam Bridge	17
4.2.2	Alternative 2B: 4-Span AASHTO Type BII Box Beam Bridge	19
4.3	Alternative Summary Table	21
4.4	Recommended Bridge Alternative	22
4.4.1	Bridge Median Considerations	22
5	Proposed Foundations	25
6	Proposed Bridge Hydraulics	26
7	Environmental	27
7.1	Biological Resources	27
7.2	Water Resources	27
7.3	Cultural Resources	28
7.4	Visual Resources	28
7.5	Noise	28
7.6	Air Quality	29
7.7	Hazardous Materials	29
8	Aesthetics	29
9	Constructability and Cost	29
10	References	31

January 27, 2025 | i



Note: Stations are along the 1st Avenue Construction Centerline. Dimensions and Elevations are along the NB or SB Bridge Profile Grade Line at Top of Deck unless noted otherwise.

ALTERNATIVE 1A:
3-SPAN UTAH BULB TEE GIRDER (UBT66)
(RECOMMENDED ALTERNATIVE)



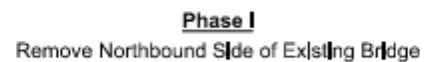
DEPARTMENT OF TRANSPORTATION/ENGINEERING DIVISION

1ST AVENUE
GRANT ROAD TO RIVER ROAD

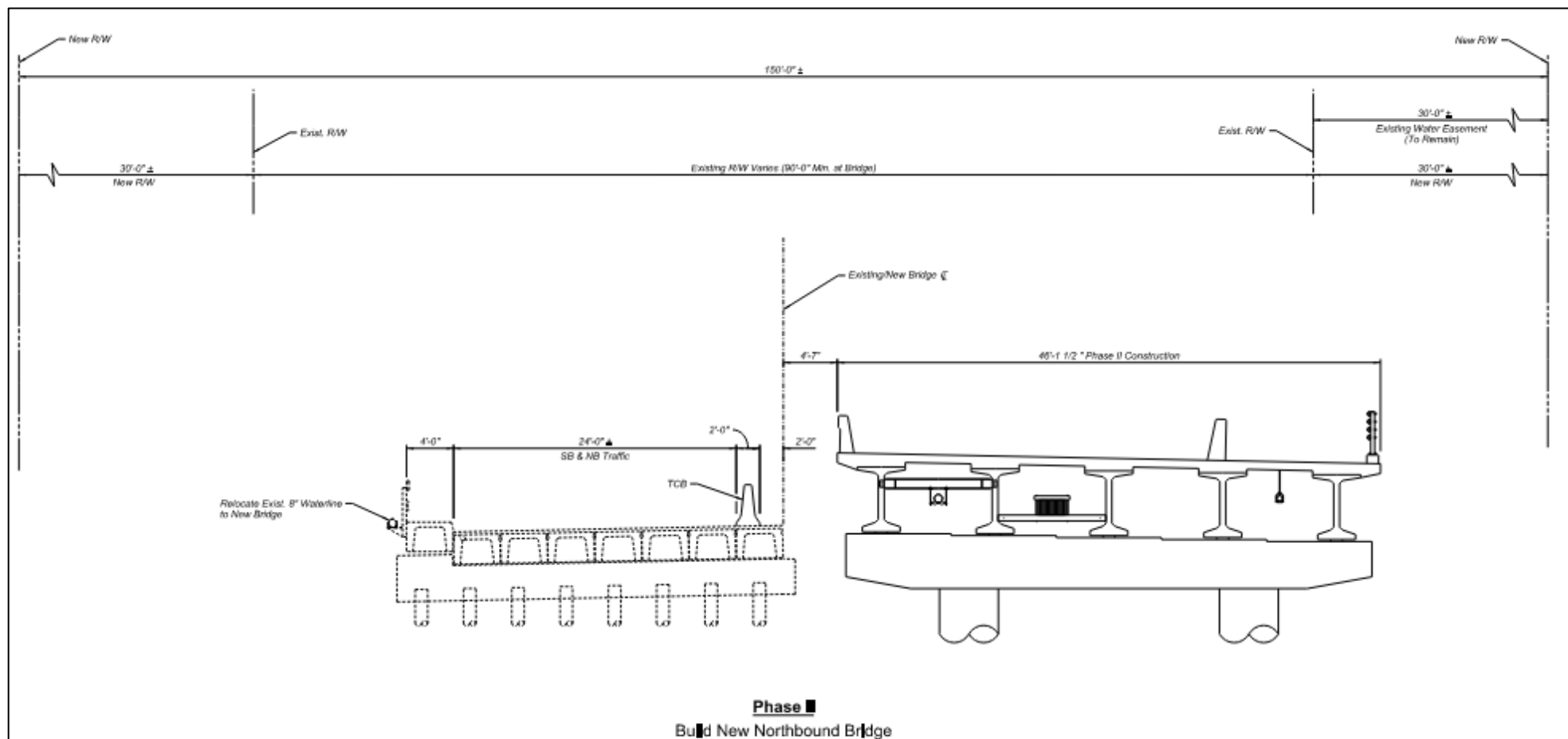
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Approved _____ 20__	C
TRANSPORTATION SECTION	
REP. _____ SCAL. _____	



Phase II
Build New Northbound Bridge

CONSTRUCTION PHASING:
UBT66 OPEN MEDIAN
PHASE II

DEPARTMENT OF TRANSPORTATION/ENGINEERING DIVISION

• 1ST AVENUE •
GRANT ROAD TO RIVER ROAD

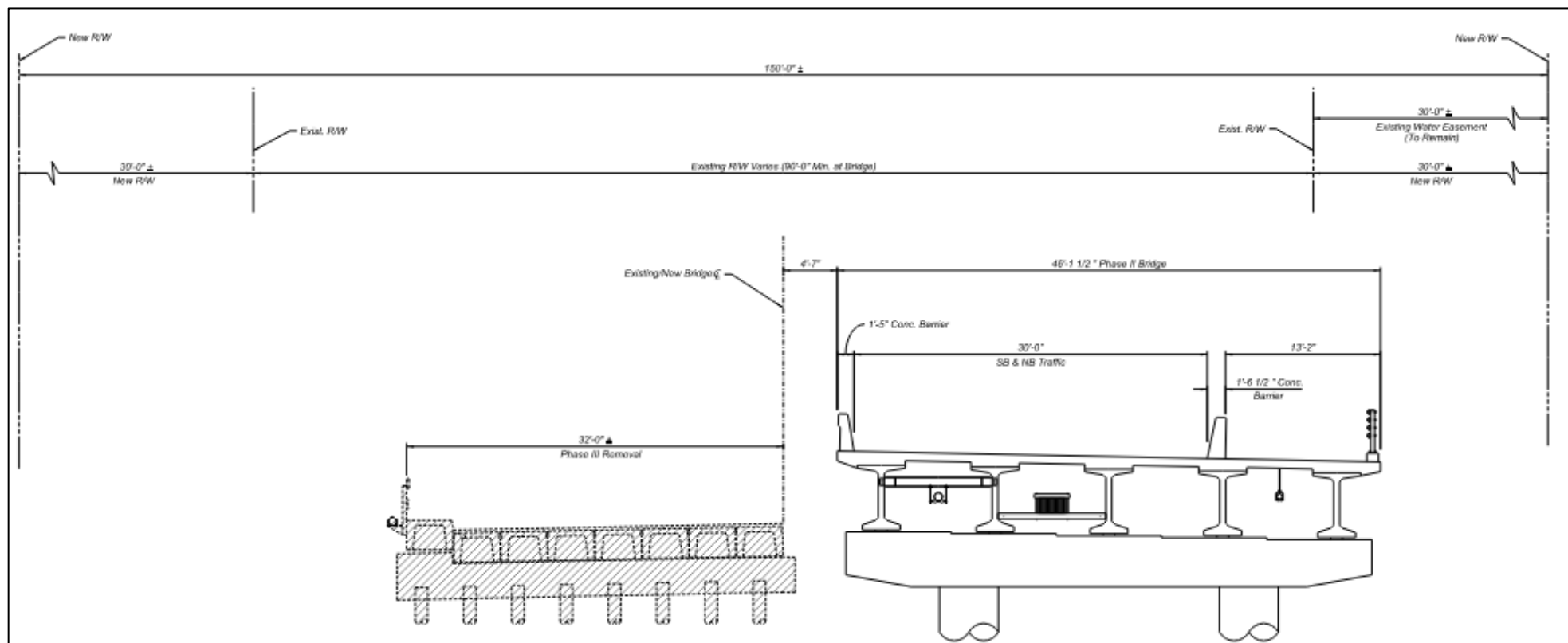


(Initial BSR
Preliminary
Not for
Construction)

Project	Location	Scale

Revised	By	Date

11



Phase III

Remove Remaining Southbound Existing Bridge

CONSTRUCTION PHASING: UBT66 OPEN MEDIAN PHASE II

DEPARTMENT OF TRANSPORTATION/ENGINEERING DIVISION

• 1ST AVENUE •
GRANT ROAD TO RIVER ROAD



(Initial RSR
Preliminary
Not for
Construction)

Section	Station	Notes	Revised	By

DATE: 8/20/25 10:00

Future Agenda Items

- Questions on presented information
- Topics for future agendas
- Additional information requests

