



1ST AVENUE GRANT ROAD TO RIVER ROAD

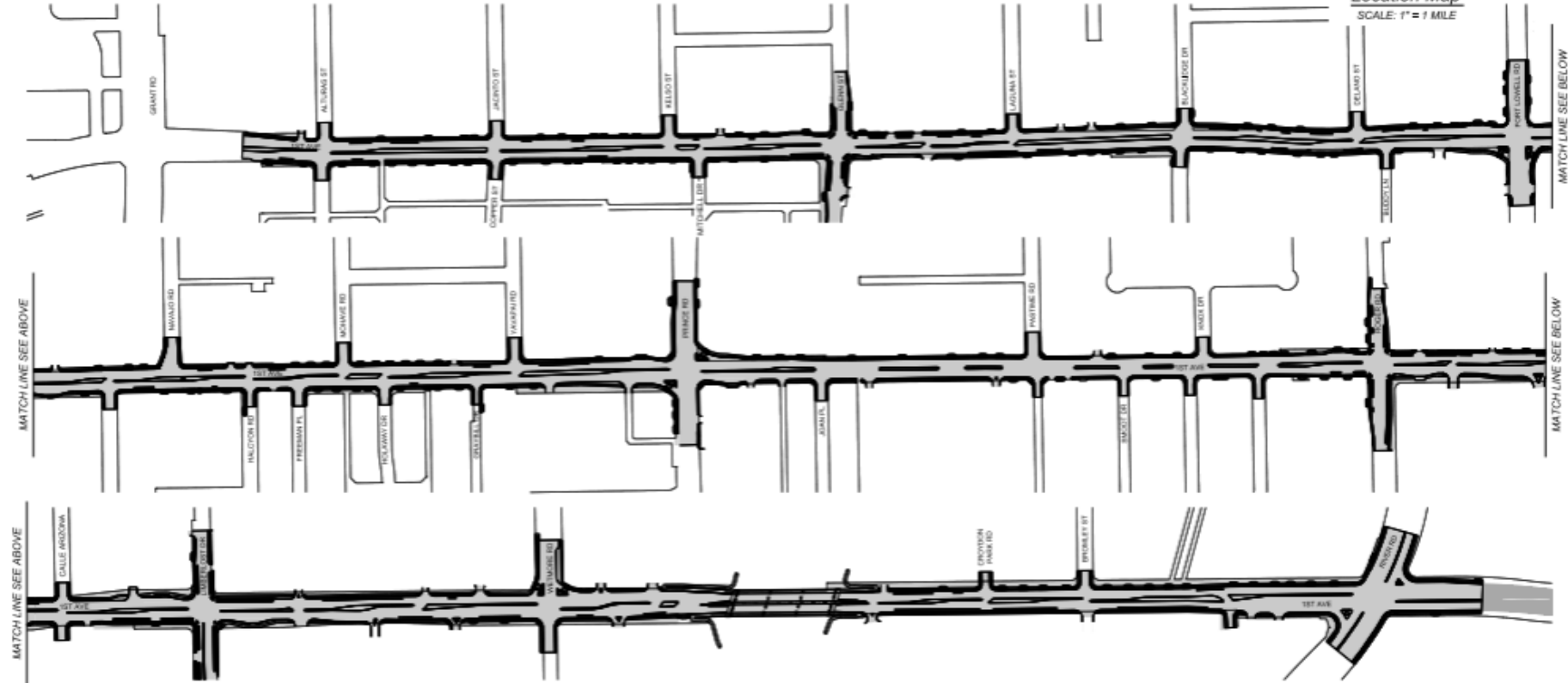
GENERAL DESCRIPTION OF PROJECT

The proposed scope of work for this project is the reconstruction of 1st Avenue to a four-lane, median divided arterial roadway. This includes sidewalk, lighting, traffic signal, and storm drain improvements. The existing bridge over the Rillito River will be replaced with three-span twin bridges.

CITY OF TUCSON PROJECT NUMBER PRJ 230193



Location Map
SCALE: 1" = 1 MILE



30%
DESIGN CONCEPT
SUBMITTAL
Preliminary
Not For
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY -
ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO RIVER ROAD -
ROADWAY IMPROVEMENTS

REV	DATE	BY	CHKD	APPD	DESCRIPTION
1					ISSUED FOR CONSTRUCTION
2					ISSUED FOR CONSTRUCTION
3					ISSUED FOR CONSTRUCTION
4					ISSUED FOR CONSTRUCTION
5					ISSUED FOR CONSTRUCTION
6					ISSUED FOR CONSTRUCTION
7					ISSUED FOR CONSTRUCTION
8					ISSUED FOR CONSTRUCTION
9					ISSUED FOR CONSTRUCTION
10					ISSUED FOR CONSTRUCTION

APPROVED	DATE	1
TRANSPORTATION DIRECTOR	504	
REV.	SCALE	30%
PLAN NO.	R-2024-XXX	

Ultimately, the CTF approved the use of the two cross-sections illustrated below to be utilized as the starting point for conceptual design. The complete roadway layout will be refined through the final design process:

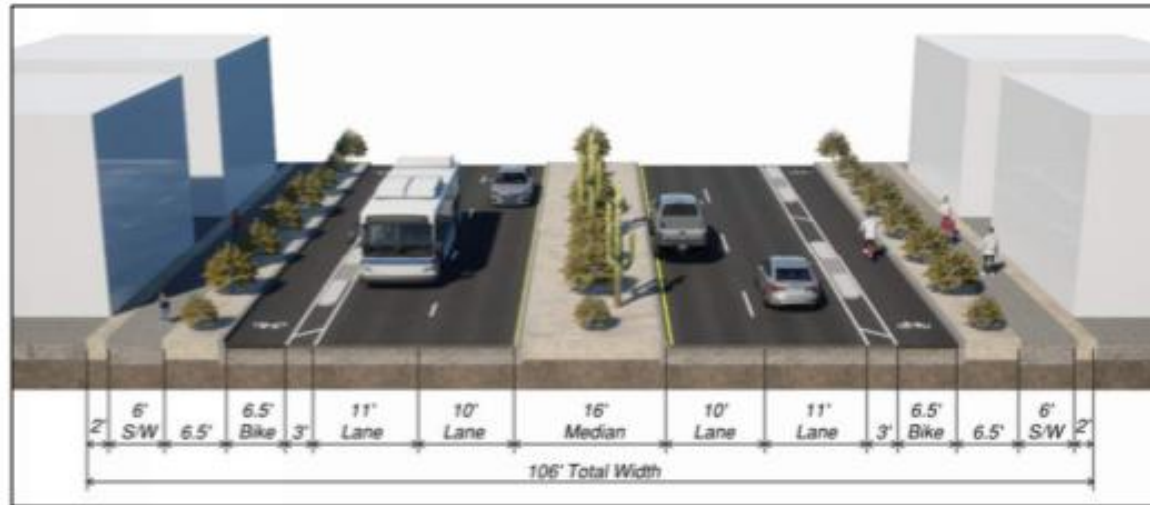


Figure 41 - Preferred Roadway Cross-Section

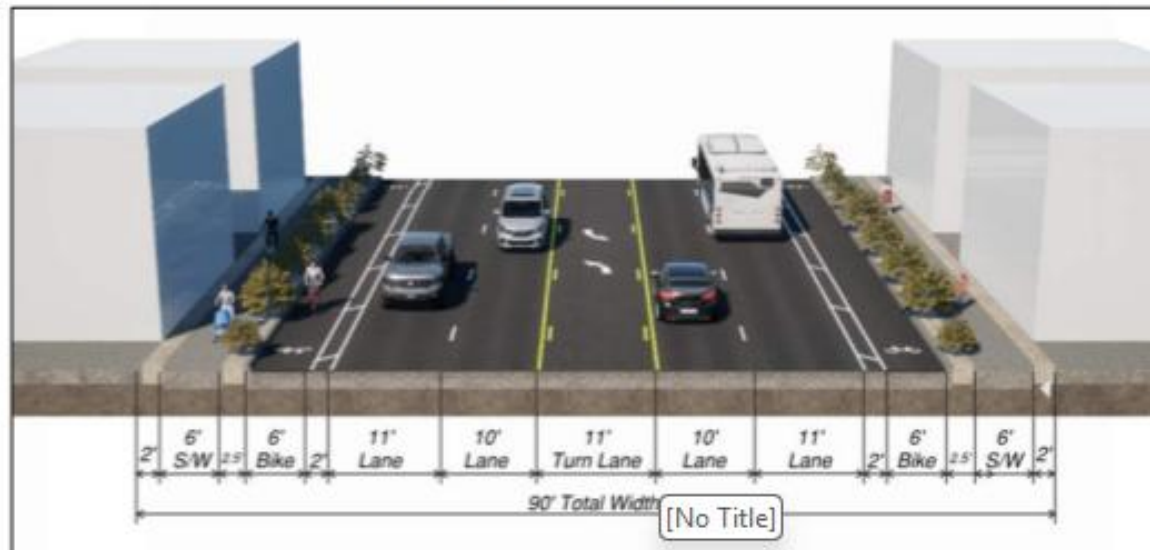


Figure 42 – CTF Selected Narrowed Roadway Cross-Section

14 Recommended Roadway Alignment Alternative

Utilizing the Project Goals and associated Design Strategies, the design team was able to create the Recommended Roadway Alignment Alternative. This alternative provides the preferred roadway cross-section for the majority of the corridor, and narrow roadway cross-section between Prince Road and Roger Road. By utilizing the curvilinear to acquire necessary right-of-way width from both sides of 1st Avenue, this alternative minimizes the not only the cost of right-of-way acquisition, but reduces the impact to the existing business and homes, and preserves much of the existing character along the corridor.



Figure 52 - Recommend Roadway Alignment. Approved by the CTF and Presented at the Phase III Outreach Open House

GENERAL NOTES

- HORIZONTAL CONTROL:**
HORIZONTAL DATUM: ARIZONA COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983 (2011) WITH 2010 EPOCH, CENTRAL ZONE 0202, IN INTERNATIONAL FEET, USING A COMBINED SCALE FACTOR (CF), 0.9999910 (1/CF = 1.00010901188). SURFACE NORTHING AND EASTING COORDINATES ARE DERIVED BY DIVIDING THE STATE PLANE GRID COORDINATES BY THE COMBINED SCALE FACTOR (SURFACE VALUE=GRID VALUE/CF).
- BASIS OF BEARING:**
THE BASIS OF BEARING FOR THIS PROJECT IS NORTH 00°02'30" WEST, AND WAS DERIVED USING THE PREVIOUSLY DESCRIBED HORIZONTAL DATUM AND OBSERVED LOCATIONS OF POINT NO. 600 AN ESTABLISHED 1/2" REBAR FLUSH WITH NO TAG LOCATED AT THE SOUTHEAST CORNER OF SECOND (2') AVENUE AND GRANT ROAD LAYING 19 FEET EAST OF 2' AVENUE'S EAST RIGHT-OF-WAY LINE TO POINT NO. 606 A PIMA COUNTY'S ONLINE POSITIONING USER SERVICE (OPUS) "13S13E, N25 AND ALSO KNOWN AS PIMA COUNTY SURVEY DESIGNATION "NN-148 WHICH IS A FOUND 3/16" STAINLESS STEEL PIN IN PVC SLEEVE INCASED IN CONCRETE WITH NO LID, THE RIM IS STAMPED "NN-148 1991" LAYING 0.30' BELOW GROUND, AND LOCATED 750 FEET SOUTH OF THE INTERSECTION OF RIVER ROAD AND FIRST (1') AVENUE AND 48 FEET WEST OF THE RANGE LINE BETWEEN SECTION 24 OF T.13S, R.13E, AND SECTION 19 OF T.13S, R.14E, OF GILA AND SALT RIVER MERIDIAN, THE HORIZONTAL SURFACE DISTANCE BETWEEN THESE TWO MONUMENTS IS 15749.11 FEET.
- VERTICAL CONTROL:**
THE BASIS OF ELEVATION (B.O.E.) AND PRIMARY HORIZONTAL CONTROL POINT FOR THIS PROJECT IS POINT NO. 506 A PIMA COUNTY'S ONLINE POSITIONING USER SERVICE (OPUS) "13S13E, N25 AND ALSO KNOWN AS PIMA COUNTY SURVEY DESIGNATION "NN-148 WHICH IS A FOUND 3/16" S TAINLESS STEEL PIN IN PVC SLEEVE INCASED IN CONCRETE WITH NO LID, THE RIM IS STAMPED "NN-148 1991" LAYING 0.30' BELOW GROUND, AND LOCATED 750 FEET SOUTH OF THE INTERSECTION OF RIVER ROAD AND 1' AVENUE AND 48 FEET WEST OF THE RANGE LINE BETWEEN SECTION 24 OF T.13S, R.13E, AND SECTION 19 OF T.13S, R.14E, OF GILA AND SALT RIVER MERIDIAN, AS SHOWN ON PIMA COUNTY GPS OCCUPATION SHEET PID - GPS0143, AND HAVING AN ORTHOMETRIC ELEVATION = 2322.01 FEET BASED UPON NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 INTERNATIONAL FEE, AND USING GEOID18.
- THE PRIMARY CONTROL POINT IS THE SAME PIMA COUNTY DOT OPUS CONTROL POINT "13S13E, N25" AS DESCRIBED UNDER VERTICAL CONTROL, WHICH IS AN OPUS RESOLVED STATIC SOLUTION. THE SECONDARY CONTROL POINTS WERE ESTABLISHED FOR THIS PROJECT BASED UPON THE PRIMARY CONTROL POINT. THE CONTROL POINTS USED FOR THIS PROJECT HAVE THE FOLLOWING COORDINATE VALUES:**

POINT & NAME	NORTHING INTERNATIONAL FEET	EASTING INTERNATIONAL FEET	ORTHOMETRIC ELEVATION INTERNATIONAL FEET
PRIMARY CONTROL PT. & B.O.E.			
13S13E, N25 PT. #606	2011 GRID SURFACE		
SECONDARY CONTROL PTS.			
EPS CP PT. #600 1/2" REBAR LOCATED NORTHEAST OF NORTH STREET AND 2ND AVENUE.	455,991.8630 456,041.5720	995,235.8940 995,344.3870	2415.22
EPS CP PT. #604 1/2" REBAR LOCATED EAST OF FIRST AVENUE IN ALLEY BETWEEN FREEMAN PLACE AND HOLMAN DRIVE.	462,701.2200 462,751.6600	995,560.2240 995,668.7520	2354.20
EPS CP PT. #607 1/2" REBAR LOCATED SOUTHEAST OF FIRST AVENUE AND BROMLEY STREET.	471,224.0410 71,275.4110	995,327.2250 995,435.7280	2323.79
- ALL STATIONING SHOWN ON THE PLANS AND PROFILES IS ALONG THE CONSTRUCTION CENTERLINE UNLESS OTHERWISE NOTED.
- ALL CONSTRUCTION SHALL CONFORM TO 2015 EDITION OF THE PIMA ASSOCIATION OF GOVERNMENTS (PAG) STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC IMPROVEMENTS EXCEPT AS MODIFIED IN THE CONTRACT SPECIFICATIONS OR PLANS. PAVEMENT MARKING SHALL CONFORM TO THE PC/COT SIGNING & PAVEMENT MARKING DESIGN MANUAL, 2020 FIRST EDITION, REFERENCED ADOT STANDARDS ARE PER THE LATEST EDITION ADOT BRIDGE GROUP STRUCTURE DETAIL DRAWINGS, CONSTRUCTION STANDARD DRAWINGS, & SIGNING AND MARKING STANDARD DRAWINGS.
- EXISTING OVERHEAD ELECTRIC, TELEPHONE AND CABLE T.V. UTILITIES AND UNDERGROUND ELECTRIC, GAS, T.V. AND TELEPHONE UTILITIES WILL BE RELOCATED BY OTHERS.
- SURVEY MONUMENTS WILL BE FURNISHED AND PLACED BY THE CONTRACTOR PER PAG STD. DTL. 103 SHT. 1 OF 3 OR SHT. 2 OF 3. SEE GEOMETRIC LAYOUT AND PAVING PLAN AND PROFILE SHEETS FOR LOCATIONS.
- ALL SURVEY MONUMENTS SHALL BE ESTABLISHED BY A LAND SURVEYOR REGISTERED IN THE STATE OF ARIZONA, AND A RECORD OF SURVEY WILL BE PROVIDED.
- RADI ARE MEASURED TO FRONT FACE OF CURB PER C.O.T. STANDARDS.
- CONSTRUCTION ZONE TRAFFIC CONTROL SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, EDITION OF 2023, AND THE SPECIAL PROVISIONS.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS.
- SOUTHWEST GAS HAS VALVES WITHIN THE PROJECT AREA THAT MAY NEED TO BE PROTECTED AND ADJUSTED TO FINAL GRADE. THE CONTRACTOR MUST CONTACT SOUTHWEST GAS FOR ADJUSTING VALVES AT LEAST TWO WEEKS PRIOR TO THE START OF CONSTRUCTION BY CALLING (520) 794-8208.
- SOUTHWEST GAS REQUIRES A 1-FOOT MINIMUM SEPARATION WHEN CROSSING ITS DISTRIBUTION FACILITIES AND A 3-FOOT MINIMUM SEPARATION WHEN CROSSING HIGH PRESSURE MAINS.
- SWPPP MEASURES SHALL BE INSTALLED SO AS TO PREVENT ALL STORM WATER, CONSTRUCTION WATER, FUELS, CHEMICALS OR LIQUIDS FROM BEING DIRECTED INTO OR ONTO ANY SANITARY SEWER FACILITIES. PROTECTION OF SANITARY SEWER FACILITIES SHALL BE A PART OF THE APPROVED CONSTRUCTION SWPPP AND BEST MANAGEMENT PRACTICES. PROTECTION DEVICES SHALL BE INSTALLED AND MAINTAINED AROUND ALL POTENTIALLY AFFECTED SANITARY SEWER FACILITIES WITHIN THE PROJECT LIMITS. ADDITIONAL MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO THE USE OF RAIN STOPPERS AND WATERPROOF MANHOLE COVERS AS DEEMED NECESSARY BY THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT.
- THE CONTRACTOR SHALL VERIFY EXISTENCE OF ALL UTILITIES BY CALLING BLUE STAKE AT 1-800-782-5348 48 HOURS PRIOR TO CONSTRUCTION. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE, AND ARE SHOWN USING THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DEPTH AND HORIZONTAL LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. ANY AND ALL DAMAGE DONE BY THE CONTRACTOR TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE FAULT OF THE CONTRACTOR, WITH THE CONTRACTOR BEARING ALL FINANCIAL RESPONSIBILITY.
- THE CONTRACTOR SHALL INSTALL ALL PERMANENT PAVEMENT MARKINGS, AND ALL PERMANENT TRAFFIC CONTROL SIGNS.

- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS, ALLEYS, AND MAILBOXES DURING CONSTRUCTION. THE CONTRACTOR WILL NOT RESTRICT EMERGENCY VEHICLES, US POSTAL DELIVERY, SOLID WASTE COLLECTIONS AND/OR ACCESS TO THE ADJACENT PROPERTIES EXCEPT AS APPROVED BY THE ENGINEER.
- A COPY OF THESE PLANS SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
- ANY EXCESS EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR.
- IN THE EVENT THAT HUMAN REMAINS, INCLUDING HUMAN SKELETAL REMAINS, CREMATIONS, AND/OR FUNERARY OBJECTS ARE FOUND DURING EXCAVATION OR VICINITY OF THE DISCOVERY, STATE LAWS ARS 41-865 AND ARS 41-844 REQUIRE THAT THE ARIZONA STATE MUSEUM BE NOTIFIED OF THE DISCOVERY AT (520) 621-4795 SO THAT CULTURAL GROUPS WHO CLAIM CULTURAL OR RELIGIOUS AFFINITY TO THEM CAN MAKE APPROPRIATE ARRANGEMENTS FOR THE REPATRIATION AND REBURIAL OF THE REMAINS. THE HUMAN REMAINS WILL BE REMOVED FROM THE SITE BY A PROFESSIONAL ARCHAEOLOGIST PENDING CONSULTATION AND REVIEW BY THE ARIZONA STATE MUSEUM AND THE CONCERNED CULTURAL GROUPS.
- THE CONTRACTOR SHALL NOT DAMAGE NATURAL GROWTH WITHIN PRIVATE PROPERTY. ALL WORK SHALL BE DONE WITHIN EASEMENTS, ROADWAYS, AND ALLEYS.
- WHEN MATCHING EXISTING PAVEMENT OR CURB AND GUTTER, THE CONTRACTOR MUST VERIFY EXISTING ELEVATIONS TO ENSURE PROPER DRAINAGE AND GRADES. ANY DISCREPANCIES WITH THE PLANS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HAIL, AND APPLY ALL WATER REQUIRED FOR COMPACTION, AND FOR THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST FOR THIS WORK IS TO BE INCLUDED IN THE CONSTRUCTION PRICE.
- DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE, REPAIR OR REPLACEMENT OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REMOVED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
- OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, NOTES AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.

INDEX OF SHEETS

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295 - 324	SIGNAL PLAN
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366 - 405	PLANTING PLAN
406 - 447	IRRIGATION PLAN
448 - 450	BRIDGE AESTHETICS
451 - 455	RETAINING WALL SHEETS
456 - 464	BRIDGE PLAN SHEETS
465 - 504	RECORD OF SURVEY

DESIGN SHEET

SHEET 1 OF 2

Record Document
Date: 08/08/2024



30%
DESIGN CONCEPT
SUBMITTAL
Preliminary
Not For
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				2
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				504
CITY OF TUCSON	DESIGNED BY AUG 2024	CHECKED BY AUG 2024	APPROVED BY AUG 2024	SCALE AS SHOWN PLAN NO. R-2024-XXX

1ST AVE DESIGN DATADESIGN SPEED = 45 MPH
POSTED SPEED = 30 MPHGRANT ROAD TO GLENN STREET
2026 ADT = 25,089
2045 ADT = 28,100GLENN STREET TO FORT LOWELL ROAD
2026 ADT = 27,480
2045 ADT = 31,100FORT LOWELL ROAD TO PRINCE ROAD
2026 ADT = 33,087
2045 ADT = 36,800PRINCE ROAD TO ROGER ROAD
2026 ADT = 30,851
2045 ADT = 34,000ROGER ROAD TO LIMBERLOST DRIVE
2026 ADT = 30,143
2045 ADT = 33,000LIMBERLOST DRIVE TO WETMORE ROAD
2026 ADT = 30,804
2045 ADT = 33,900WETMORE ROAD TO RIVER ROAD
2026 ADT = 29,758
2045 ADT = 31,500**DESIGN VEHICLE**COLLECTOR AND LOCAL INTERSECTIONS
TYPICAL WB-40
CHECK CITY-BUS**LENGTH OF PROJECT**

1ST AVENUE CONST. @ STA. 13+82.62 TO STA. 182+00 = 16,817.38' = 3.19 MILES

LEGENDLEGEND USED IS PER PAG STANDARD DETAIL FOR PUBLIC
IMPROVEMENTS 2015 EDITION DETAIL 100 AND 101 AS
FOLLOWS:**NEW****EXISTING****ITEM**

TRAFFIC SIGNAL (TWO HEAD)

GUY WIRE AND/OR GUY POLE

UTILITY POLE

TELEPHONE MANHOLE

PAVEMENT REMOVAL

NEW STORM DRAIN

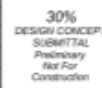
NEW RIGHT OF WAY

EXISTING RIGHT OF WAY

TEMPORARY CONST. ESMT.

NEW PAVEMENT

MILL AND OVERLAY

30%
DESIGN CONCEPT
SUBMITTAL
Not For
Construction**BID ITEM LEGEND**

ITEM NO.	Symbol	Description
9080041		Concrete Vertical Curb - Type 2 PAG Std. Det. 209, H-5'
90800XX		2' Roll Curb - Type C MAG Std. Det. 220-1
9080006		Concrete Wedge Curb PAG Std. Det. 209
9080305		Concrete Driveway See Detail X
9080203		Concrete Sidewalk PAG Std. Det. 200
9080204		Concrete Bus Stop Pad PAG Std. Det. 209 (6" Thick)
9080200		Bus Stop Shelter
[No Title]		Concrete Access Ramp PAG Std. Det. 207
9080290		Concrete Access Ramp See Detail X
9080293		Concrete Access Ramp See Detail X
9080294		Concrete Access Ramp See Detail X
9080295		Shared-Use Path

EARTHWORK SUMMARY

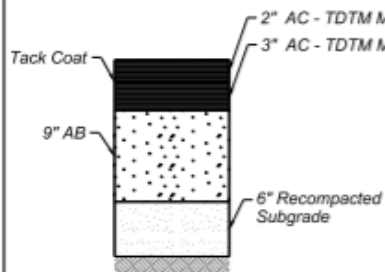
ROADWAY EXCAVATION	54,226 C.Y.
DRAINAGE EXCAVATION	473 C.Y.
TOTAL EXCAVATION	54,699 C.Y.
ROADWAY EMBANKMENT	11,709 C.Y.
WASTE	48,733 C.Y.
BORROW	3,216 C.Y.

Note:

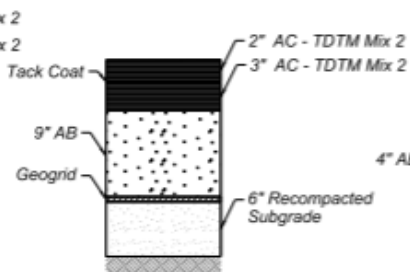
- Earthwork volumes presented are inclusive of both project phases:
Phase 1: River Road to Wetmore Road, Phase 2: Wetmore Road to Grant Road.
- Earthwork quantities presented in this summary do not include shrink or swell.

**DESIGN SHEET****SHEET 2 OF 2**

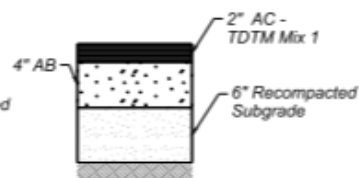
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				3
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				504
CITY OF TUCSON	DESIGNED BY [Signature]	CHECKED BY [Signature]	APPROVED BY [Signature]	PLAN NO. R-2024-XXX

PAVEMENT STRUCTURAL
SECTION NUMBER 1

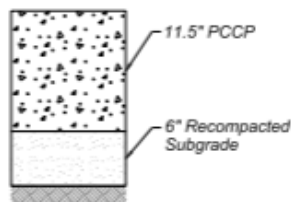
1ST AVENUE
STA. 103+00 TO STA. 177+91

PAVEMENT STRUCTURAL
SECTION NUMBER 2

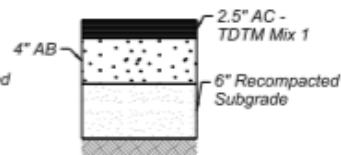
1ST AVENUE
STA. 13+83 TO STA. 103+00.

PAVEMENT STRUCTURAL
SECTION NUMBER 3

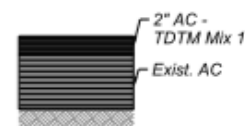
MINOR SIDE ROADS, DRIVEWAYS, AND PARKING LOTS

PAVEMENT STRUCTURAL
SECTION NUMBER 4

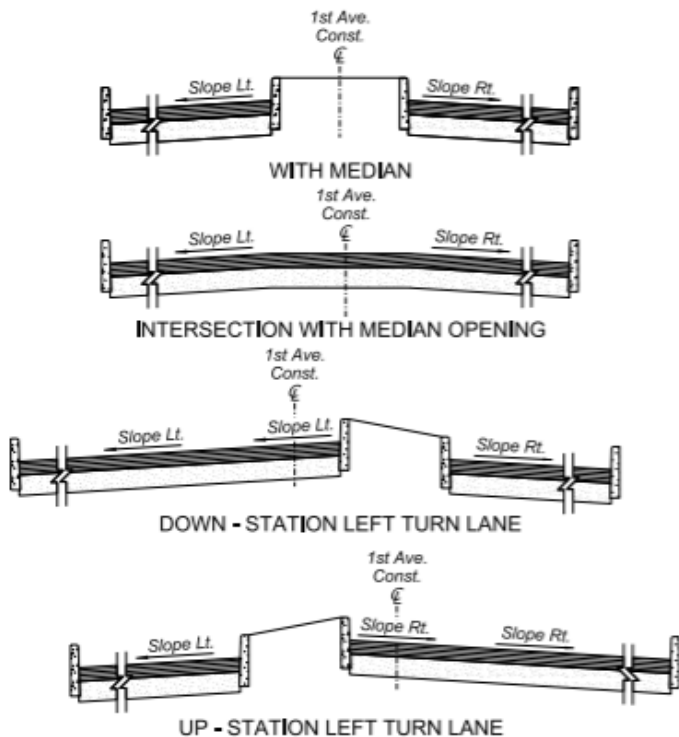
BUS BAYS

PAVEMENT STRUCTURAL
SECTION NUMBER 5

MULTI - USE PATH

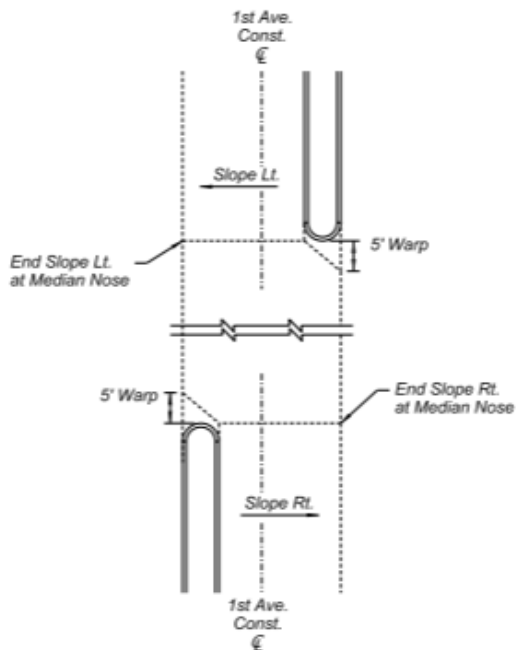
PAVEMENT STRUCTURAL
SECTION NUMBER 6

MILL AND OVERLAY
1ST AVENUE
STA. 177+90.52 TO STA. 182+00



DETAIL

PROFILE GRADE AND CROSS SLOPE CONTROL



NOTES:

1. *These Sections represent the typical roadway layout in relation to the Construction CL only. See Geometric Layout Sheets, Paving Plans, Staking Plans, and Retaining Wall Plans for additional information.*
2. *Detail sections for non-typical edge treatments at specific locations are shown on the Paving Plans.*
3. *The Existing and Proposed Right-of-Way varies throughout the project corridor. Refer to the Right-of-Way and Paving Plans for detailed information.*

TYPICAL SECTIONS

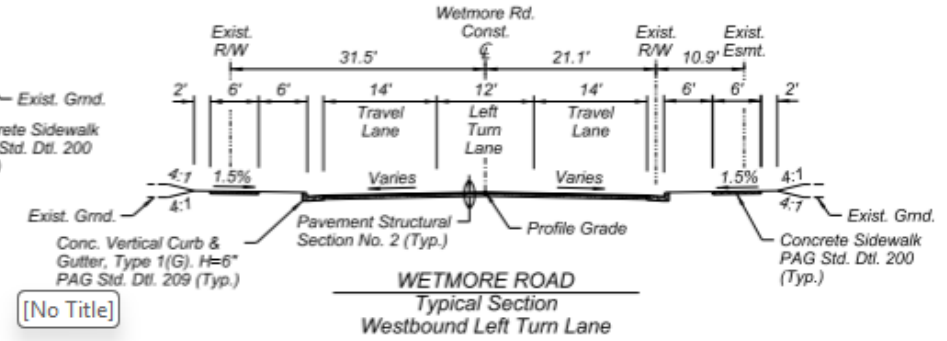
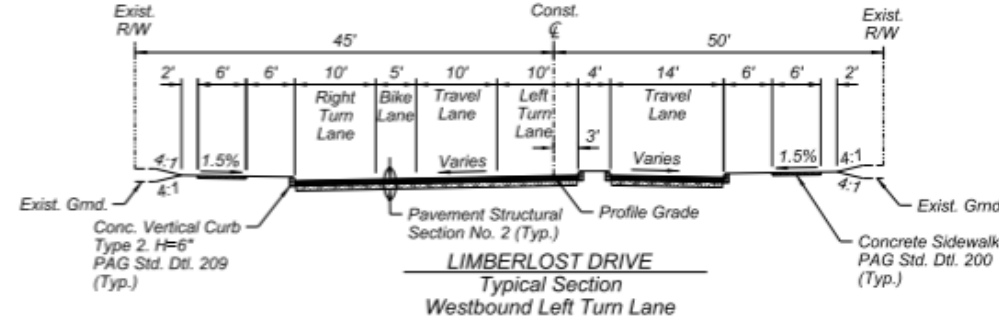
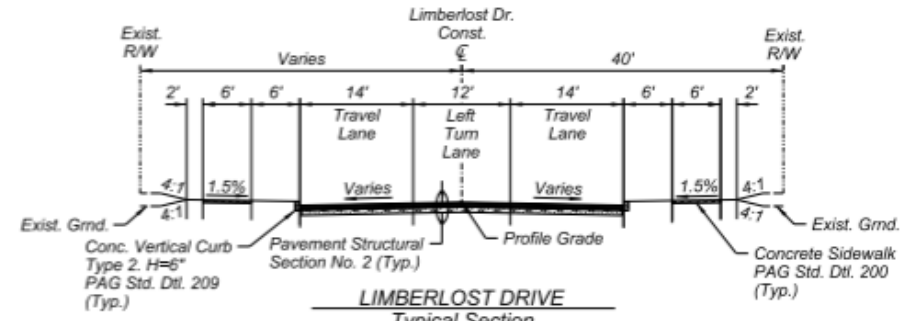
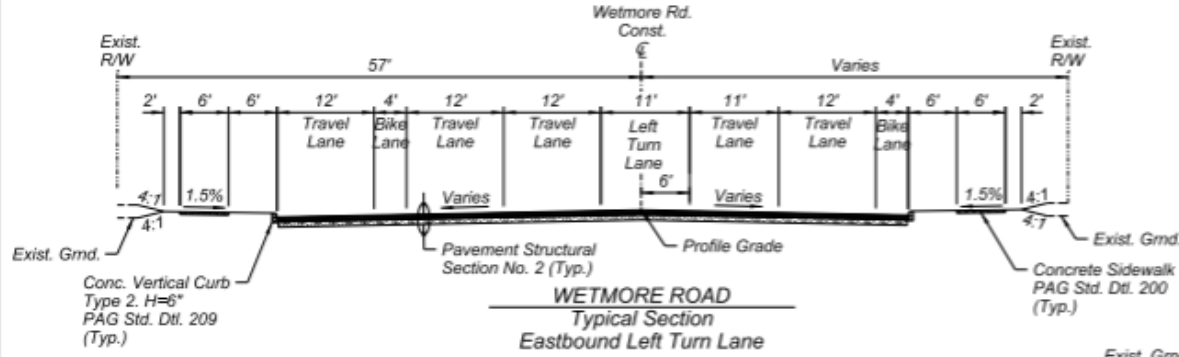
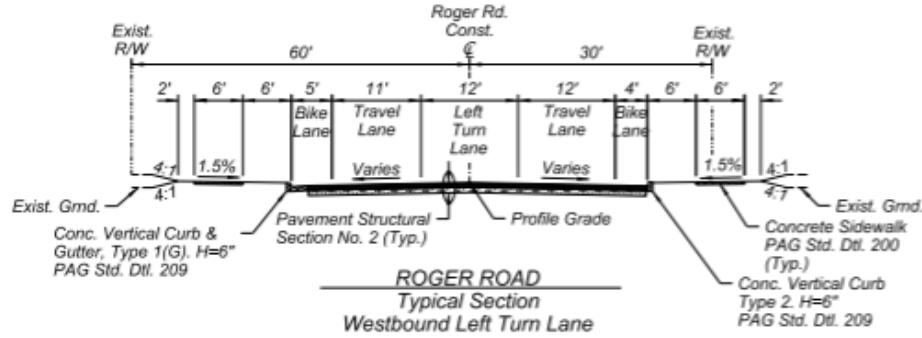
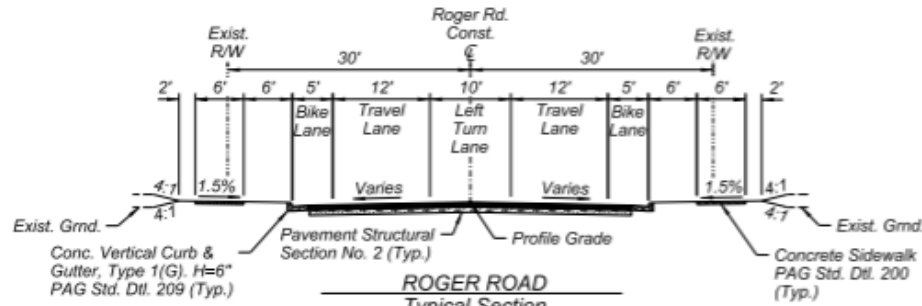
SHEET 1 OF 6

W/L	DATE	REVISION	BY	CHECK	APPV

30%
DESIGN CONCEPT
SUBMITTAL
*Preliminary
Not For
Construction*

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				4
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 504
 city of TUCSON	DESIGNED BY <u>SEA</u> AUG 2024	CHECKED BY <u>SEA</u> AUG 2024	APPLIED BY <u>SEA</u> AUG 2024	SCALE <u>NOT</u> PLAN NO. <u>R-2024-100X</u>





[No Title]

TYPICAL SECTIONS

SHEET 5 OF 6

Record Document
Date: 06/06/2024



30%
DESIGN CONCEPT
SUBMITTAL
Preliminary
Not For
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				8
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				504
CITY OF TUCSON	DESIGNED BY [Signature]	CHECKED BY [Signature]	APPROVED BY [Signature]	DATE 11/16/2024
PROJECT NO. R-2024-XXX				

