

22nd Street between Kino Parkway and Tucson Boulevard **Alternative Alignment Report**

Prepared for

**City of Tucson and
Regional Transportation Authority**



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KINO PARKWAY – 22ND STREET INTERSECTION & WIDENING TO TUCSON BOULEVARD



August 25, 2008

Subject: CAC Endorsement of 22nd Street Widening between Kino Parkway and Tucson Boulevard Alternative Alignment Report

Honorable Mayor and Council
City of Tucson

The 22nd Street widening between Kino Parkway and Tucson Boulevard Citizens Advisory Committee (CAC) and the design team have worked through the process of developing a preferred alternative for this section of 22nd Street. The process of the preferred Alternative 3A is documented in the Alternative Alignment Report prepared for this project. **This letter is to inform you that the CAC endorses the 22nd Street widening between Kino Parkway and Tucson Boulevard Alternative Alignment Report.**

The CAC has met extensively to receive and consider information about alternatives for this project. CAC members have participated in developing evaluation criteria and applying this criterion, along with the TAC, to the alternatives of the project.

There was unanimous agreement regarding the recommended alignment for the 22nd Street widening between Kino Parkway and Tucson Boulevard. In summary, the CAC endorses the Alternative Alignment Report and the preferred alternative contained therein. We recommend that Mayor and Council approve the alternative alignment report and the preferred alignment.

Sincerely,

Ivo Ortiz, Chair
Citizens Advisory Committee

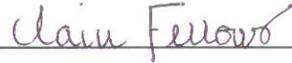
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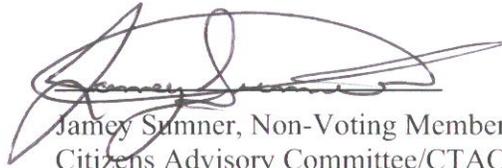
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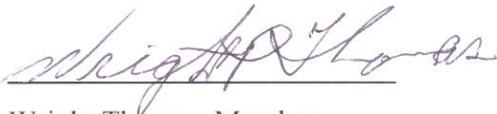
Les Pierce, Member
Citizens Advisory Committee



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EXECUTIVE SUMMARY

In May 2006, the Regional Transportation Authority (RTA) plan and sales tax were approved by the voters of Pima County. One of the 35 roadway improvement projects included in the RTA plan is 22nd Street from I-10 to Tucson Boulevard. This Alternative Alignment Report (AAR) has been prepared for the section of 22nd Street between Kino Parkway and Tucson Boulevard.

22nd Street between Kino Parkway and Tucson Boulevard does not have enough travel lanes to carry the number of vehicles currently using the roadway at an appropriate mobility and safety level of service. Improvements are needed not only to increase roadway capacity for vehicular traffic, but to provide greater pedestrian and bicycle safety, and improve existing transit service. In addition, the existing 22nd Street bridge that spans the Barraza-Aviation Parkway and the Union Pacific Railroad (UPRR) has weight restrictions imposed, and heavy trucks and busses are being detoured around the bridge onto adjacent roadways.

The proposed improvements to increase 22nd Street capacity, mobility, and safety consist of widening the roadway to include 6 travel lanes, a raised landscaped median, bicycle lanes, sidewalks, and American with Disabilities Act access ramps.

Three alternative alignments were developed for this segment of 22nd Street between Kino Parkway and Tucson Boulevard. Alternative 1 maintains the existing roadway alignment and widens symmetrically about that centerline. Alternative 2 shifts the alignment south of the existing roadway to allow construction of the new UPRR/Barraza-Aviation Parkway bridge to occur without impacting the existing bridge. Alternative 3 is similar to alternative 2 in that it shifts the alignment to the north to eliminate impacts to the existing bridge during construction.

A comparative impact assessment of the alternatives was performed on a number of project elements. These elements include traffic operations, SunTran, drainage, utilities, bike routes, pedestrian facilities, right-of-way, bridge structures, zoning and land use. Differences worth noting between the alternatives occur in the traffic operations, right-of-way, and bridge structures project elements.

Traffic operations during construction varies between the three alternatives. The alignment shift for Alternatives 2 and 3 allows two lanes of traffic in each direction to continue on the existing bridge during construction, and has the least impact on traffic during construction.

Construction of Alternative 1 would require that 2-way traffic with one lane in each direction be restricted to one-half of the bridge while the other half is being demolished and rebuilt.

Right-of-way impacts east of the UPRR bridge are essentially the same for each alternative. West of the bridge however, impacts are varied. Alternative 1 impacts both the north and south sides of 22nd Street due to the symmetrical widening. Alternative 2 with the shift to the south impacts the south side only, and to a greater extent than Alternative 1. Alternative 3 with the shift to the north impacts the north side only, also to a greater extent than Alternative 1. This alternative also impacts 3 large warehouse facilities on the north side.

The structure depth from the top of pier to the top of the roadway surface directly impacts the cost of the bridge. The structure depth of new bridge varies with the location of the alignment. The UPRR rail yard is just south of 22nd Street, and as the location of the bridge moves south and encroaches into the yard, the pier spacing must increase to meet UPRR clearances, and the structure depth must also increase to accommodate the longer pier spacing. Consequently, Alternative 2 will have the largest structure depth and will have the greatest construction cost, and Alternative 3 will have the smallest structure depth, and will have the least construction cost. Additionally, Alternative 2 would impact an existing UPRR pedestrian bridge which would require relocation.

In addition to the comparative assessment elements identified above, another list of evaluation criteria was developed by the project team, and approved by the Technical Advisory Committee (TAC) and the Citizens Advisory Committee (CAC) established for this project. This list of evaluation criteria was compiled into a matrix that the TAC used to evaluate the alternatives. Alternative 1, Alternative 2, and Alternative 3 received 95, 104, and 106 points respectively. Because the results were so close, another alternative layout was developed by incorporating the favorable elements from the other alternatives and combining them with Alternative 3 to make an operationally superior layout referred to as Alternative 3A.

Alternative 3A maintains a shift in alignment to the north, but reduces the offset of the shift to minimize impacts to properties on the north. The north half of the new UPRR/Barraza-Aviation Parkway bridge can still be constructed without impacting the existing bridge, so four lanes of traffic can be maintained on the existing bridge during construction. When completed, the north half of the new bridge has sufficient width to accommodate two lanes of traffic in each direction. Consequently there will always be four lanes available for traffic during construction. Alternative 3A was recommended by the TAC and subsequently endorsed by the CAC. With the endorsement of both the TAC and the CAC, it is recommended that the improvement project be moved forward with Alternative 3A as the preferred alternative.

The alignment of 22nd Street directly impacts the properties located along 22nd Street, and indirectly impacts the neighborhoods and businesses in the vicinity. One-on-one meetings have been held with the property owners along 22nd Street, and presentations have been made to adjacent neighborhood associations. In addition, there have been open house meetings for the general public and there are on-going CAC meetings for the project. Comments from the public and the CAC members have been received on the project, and these comments will be carried forward into the preparation of the Environmental Design and Mitigation Report, and the 15% design plans contained in that report. These comments include:

- If the first row of houses on 22nd Street is removed, consider screen walls or noise walls to protect the houses behind them.
- Don't inflate the cost of the design. Reduce median widths and use existing pavement where possible.
- If there are going to be artistic treatments, can some of them be designed by the residents and/or kids?
- Bike lane access off of the bridge needs to be safe.

1.0 INTRODUCTION

In May 2006, the Regional Transportation Authority (RTA) plan and sales tax were approved by the voters of Pima County. One of the 35 roadway improvement projects included in the RTA plan is 22nd Street from I-10 to Tucson Boulevard. This Alternative Alignment Report (AAR) has been prepared for the section of 22nd Street between Kino Parkway and Tucson Boulevard. In addition, this report has been prepared in compliance with the requirements of the City of Tucson's *Roadway Development Policies* (City of Tucson Ordinance #6593) adopted by Mayor and Council on November 24, 1986 and updated on April 6, 1998.

This report documents the development of roadway alternatives and the existing conditions data required to assess each alternative alignment. In addition, this report documents the evaluation of alternatives with regard to impacts on existing conditions as well as traffic operations during and after construction, land use, environmental impacts, and alternative modes.

A. Recommendations of Advance Planning Report

The Advance Planning Report (APR) prepared for this section of 22nd Street was approved by the Citizens Transportation Advisory Committee in December 2007 (see Appendix A). The report discussed the brief planning-level analysis that was performed to determine the need for the improvement project. The existing traffic conditions, future traffic conditions without improvements, proposed design concept features including roadway cross section, transit and bikeway improvements, and preliminary alternatives were assessed at a cursory level to determine justification for these roadway improvements. The recommendations that came out of the report were:

- Begin analysis of land-use opportunities that correspond with the identified alternatives.
- Proceed with an AAR as detailed in the City of Tucson Department of Transportation *Roadway Development Policies*.
- Advance the AAR to a point coincident with the AAR for the adjacent Kino Parkway/22nd Street intersection project.
- Continue policy, planning, and public involvement activities for the 22nd Street Corridor improvement project between Kino Parkway and Tucson Boulevard, in conjunction with this project, continue development of the adjacent Kino Parkway/22nd Street intersection project.

B. Overview of Project Need

The improvement project for this section of 22nd Street will increase roadway capacity, provide greater pedestrian and bicycle safety, and improve existing SunTran bus service. Currently, 22nd Street operates above capacity. In addition, the condition of the existing bridge that spans the Barraza-Aviation Parkway and the Union Pacific Railroad (UPRR) is declining, and weight restrictions have been imposed. Consequently, heavy vehicles, including trucks and buses, are being detoured around the bridge via Kino Parkway and Barraza-Aviation Parkway. The

benefits of this improvement project include adding travel lanes and turn lanes at strategic locations to increase capacity, and improving bus and truck circulation by constructing a new bridge over the UPRR. A key component to improving bike and pedestrian circulation and safety will be connecting the new improvements to existing bike and pedestrian facilities.

Figure 1 provides a map of the 22nd Street Corridor between Kino Parkway and Tucson Boulevard. The corridor map shows the key traffic intersections on 22nd Street within the project limits including those with Kino Parkway, Cherry Avenue/Cherrybell Stravenue, Barraza-Aviation Parkway, Plumer Avenue, and Tucson Boulevard, as well as the bridge over Barraza-Aviation Parkway and the UPRR tracks.

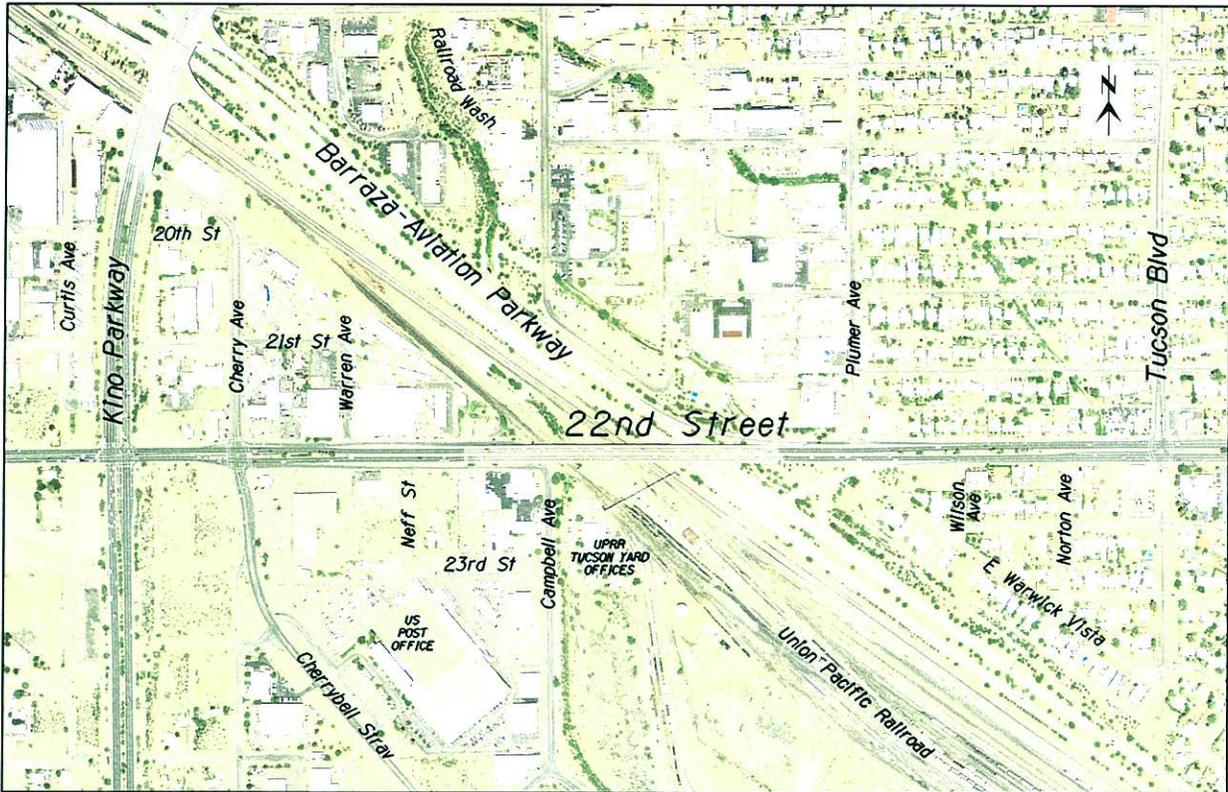


Figure 1: Project Location Map

C. Proposed Improvements

As stated previously, the 22nd Street Corridor project is identified by the RTA as a key east-west corridor within the City of Tucson. This section of 22nd Street between Kino Parkway and Tucson Boulevard will be widened from four to six lanes. Figure 2 illustrates the roadway typical section. The following design elements will also be included as part of the improvements:

- ✓ Six-lane bridge over UPRR tracks
- ✓ Raised, landscaped median
- ✓ Public art and land use opportunities
- ✓ ADA-accessible sidewalks

- ✓ Bike lanes in each direction
- ✓ SunTran service improvements
- ✓ Continuous street lighting
- ✓ Future connection to Barraza-Aviation Parkway

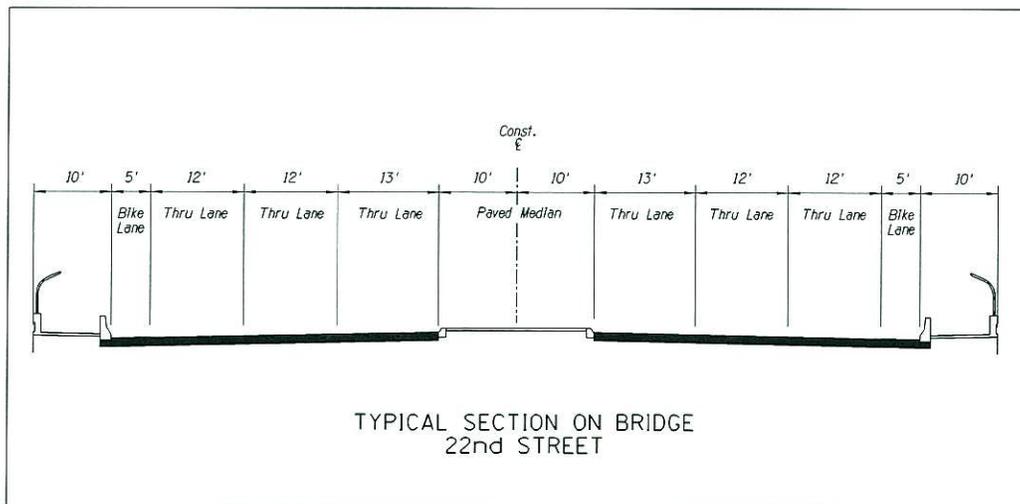
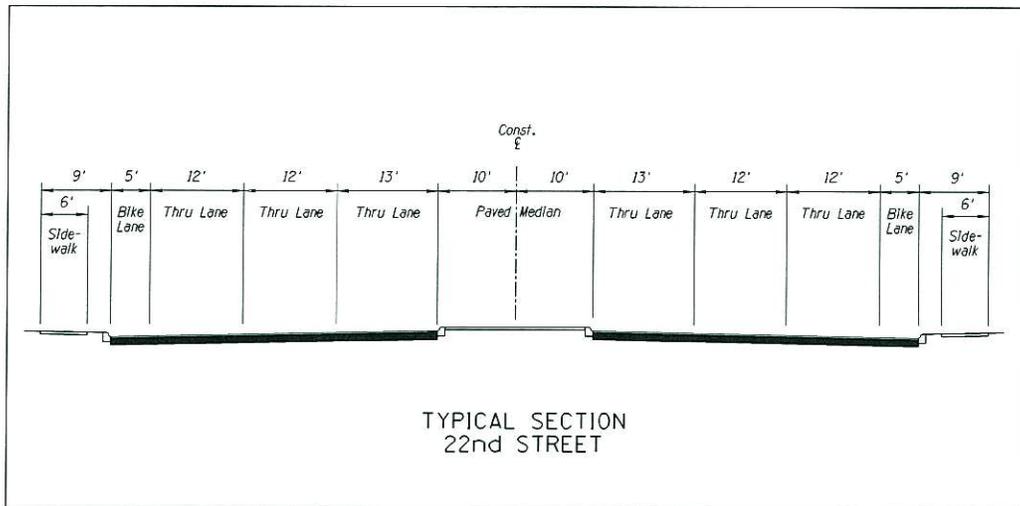


Figure 2: Roadway Typical Sections

II. IDENTIFICATION OF ALTERNATIVE LOCATIONS

Three roadway alternatives were developed for the 22nd Street alignment between Kino Boulevard and Tucson Boulevard. These alternatives will tie in to the proposed improvements at the Kino Boulevard/22nd Street intersection. Alternative intersection layouts for Kino Boulevard and 22nd Street are being developed as part of a separate AAR, and have not yet been finalized. The 22nd Street alternatives are shown ending at Cherry Avenue at the west end. However, it should be noted that the connection at the west end and its location north or south of the existing 22nd Street alignment will be dictated by the layout of the preferred alternative for the Kino Parkway/22nd Street intersection.

A. Description of Roadway Alternatives

Alternative 1

Alternative 1 follows the existing roadway centerline and widens the roadway symmetrically from the centerline, essentially maintaining the existing 22nd Street alignment (see Figure 3). The existing eastbound slip ramp that provides access for the businesses and residents south of 22nd Street and west of UPRR is reconstructed under this alternative, but is terminated at Neff Street rather than extending to Campbell Avenue as currently exists. The existing westbound slip ramp on the north side is eliminated. Access to and from Barraza-Aviation Parkway is maintained on the east side of the UPRR/Aviation overpass in basically the same geometry as their current configurations. Plumer Avenue remains a right-in/right-out traffic movement onto the Barraza-Aviation Parkway access ramp.

Alternative 2

Alternative 2 shifts the 22nd Street alignment to the south to eliminate any impact to the existing bridge during construction (see Figure 4). The existing eastbound slip ramp west of the UPRR is eliminated with this alternative, but the westbound slip ramp remains with the connection to Campbell Avenue. Access to the area south of 22nd Street and west of the UPRR is still provided via Neff Street. As with Alternative 1, access to and from Barraza-Aviation Parkway is maintained on the east side of the UPRR/Aviation overpass, and Plumer Avenue remains a right-in/right-out onto the Barraza-Aviation Parkway access ramp.

Alternative 3

Alternative 3 shifts the 22nd Street alignment to the north to eliminate any impact to the existing bridge during construction (see Figure 5). The existing eastbound slip ramp is replaced with a frontage road system, and the westbound slip ramp is eliminated. East of the UPRR/Aviation overpass, access to and from Barraza-Aviation Parkway is maintained. Plumer Avenue remains a right-in/right-out traffic movement, but access is allowed onto 22nd Street.



Figure 3: Alternative 1 (Maintain 22nd Street Alignment)

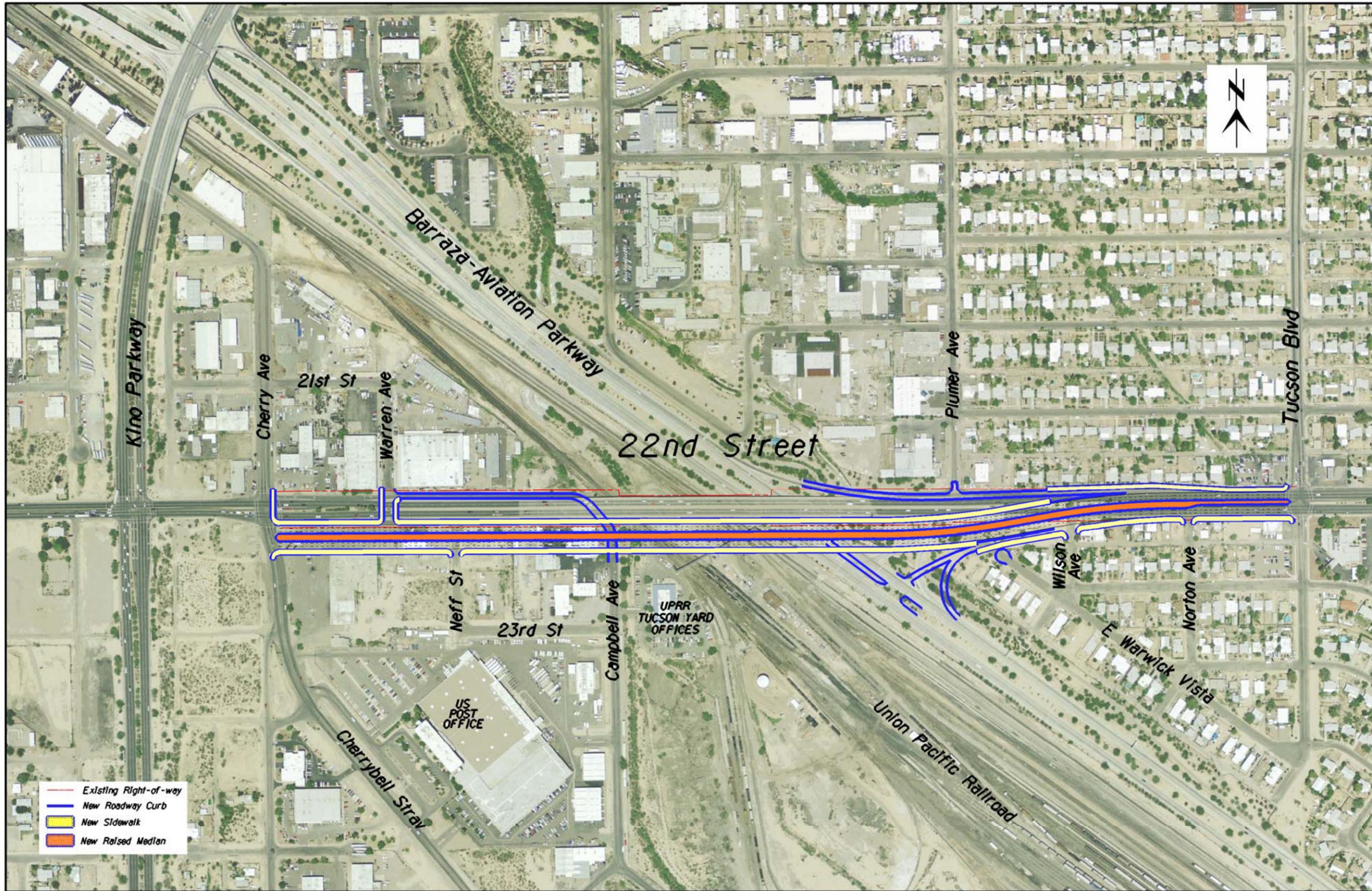


Figure 4: Alternative 2 (Shift 22nd Street to the South)

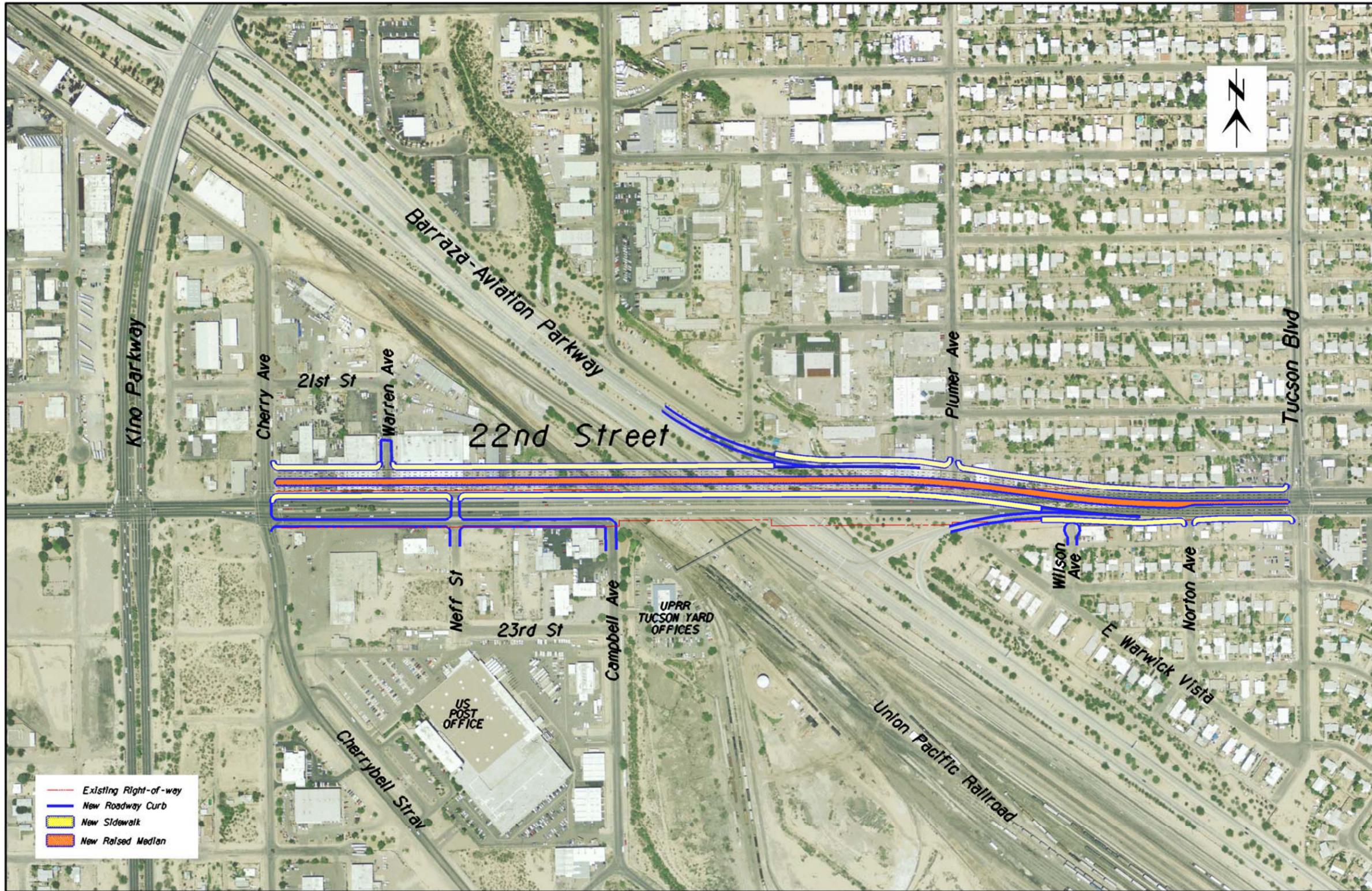


Figure 5: Alternative 3 (Shift 22nd Street to the North)

III. COMPARATIVE IMPACT ASSESSMENT AND ANALYSIS

A. Preliminary Inventory of Existing Data

Traffic

Average Daily Traffic

The study area for the traffic analysis is bounded by Broadway Boulevard on the north, Ajo Way on the south, Tucson Boulevard on the east, and Park Avenue on the west. Average Daily Traffic (ADT) volumes for area roadways were obtained from the Pima Association of Governments (PAG) and are presented in Figure 6. This figure also shows morning and evening peak-hour turning movement volumes at the major intersections in the area. The peak hour counts were performed in 2004-2005.

As shown in Figure 6, the ADT on 22nd Street west of Kino Parkway is 37,700 vehicles per day, while at the Railroad Overpass the volume increases to 41,100 vehicles per day. Both of these volumes are well above the capacity of a four-lane roadway, which is in the range of 30,000 to 35,000 vehicles per day. Kino Parkway carries 36,100 vehicles per day just north of 22nd Street, and 40,700 vehicles per day south of 22nd Street. Both of these volumes are below the capacity of a six-lane roadway, which ranges from 48,000 to 60,000 vehicles per day depending on the level of access management.

Although the daily volumes are slightly higher to the east and south of the intersection, all four legs of the Kino Boulevard/22nd Street intersection experience very similar volumes. The peak-hour volumes also show that there are no directional shifts between the morning and the evening peaks. These results are all consequences of the intersection's central location in Tucson.

Level of Service

Level of Service (LOS) is a qualitative measure describing operational conditions of a transportation facility. Letters designate each LOS, with LOS A representing the best operating conditions and LOS F the worst. A LOS analysis for both roadways and intersections within the study area was performed.

The existing LOS for the roadways within the study area was evaluated using the Florida Quality and Level of Service Tables. Barraza-Aviation Parkway was analyzed as a Class I state arterial, Kino Parkway as a Class II state arterial, and the remaining streets as major city roadways. Table 1 presents the results of the analysis.

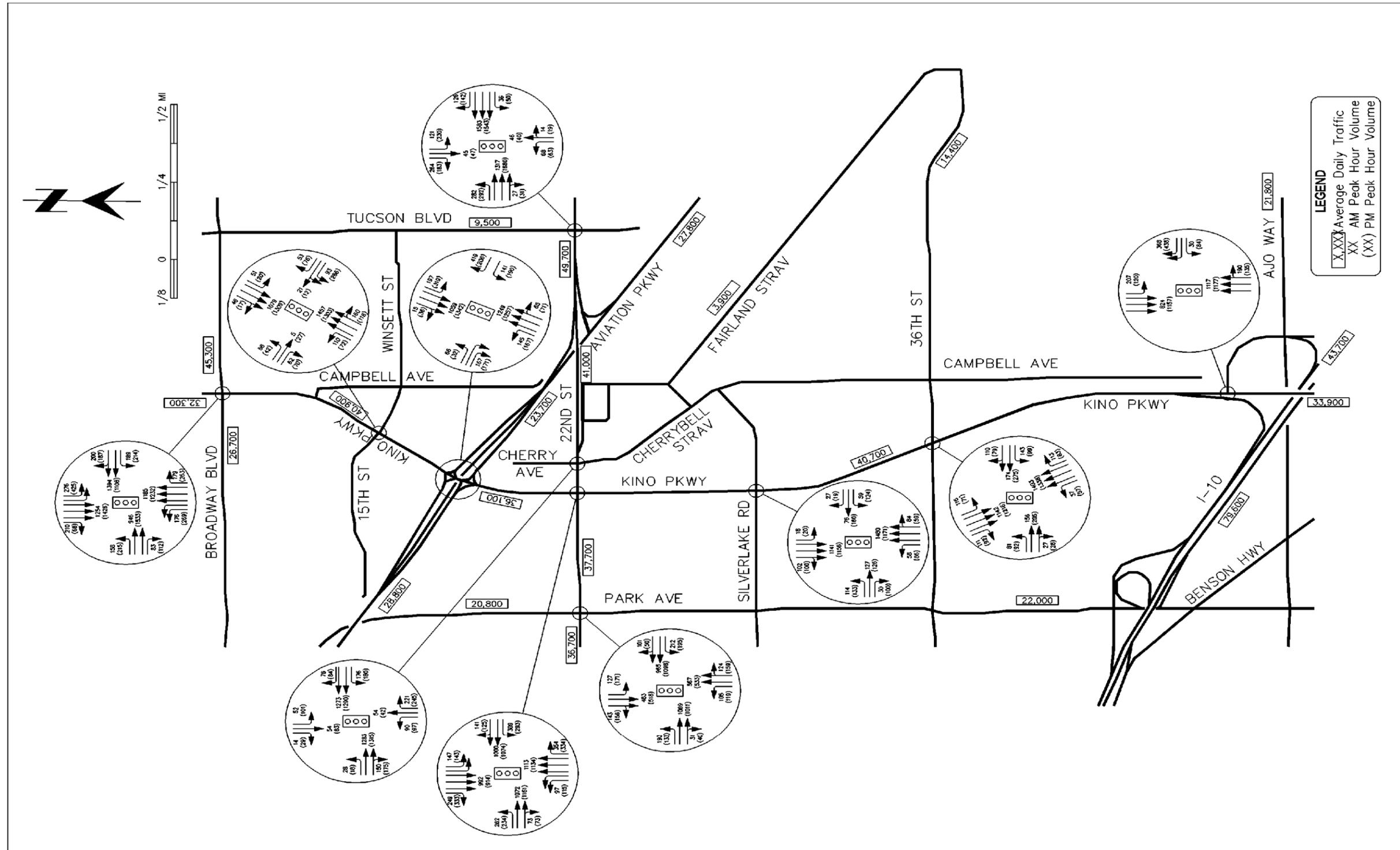


Figure 6 : Existing Traffic Volumes

Source: MMLA PSOMAS June 2006

Table 1: Average Daily Traffic Volumes within Study Area

Roadway	Segment	No. Lanes	Existing ADT	Max Volume at LOS E	Current LOS
Kino Parkway	North of Barraza-Aviation Parkway	6	41,900	51,800	D
	North of 22nd Street	6	38,900	51,800	D
	South of 22nd Street	6	37,800	51,800	D
Barraza-Aviation Parkway	West of Kino Parkway	6	31,000	53,500	B
	Northwest of 22nd Street	6	24,900	53,500	B
	Southeast of 22nd Street	6	29,900	53,500	B
22nd Street	West of Park Avenue	4	38,900	32,900	F
	West of Kino Parkway	4	40,000	32,900	F
	West of Cherry Avenue	4	40,800	32,900	F
	West of Barraza-Aviation Parkway	4	43,600	32,900	F
	West of Tucson Boulevard	4	50,700	32,900	F
	East of Tucson Boulevard	6	48,700	49,300	E

The LOS at each intersection within the study area was evaluated for the morning and evening peak hours using Synchro 6.0, a traffic analysis software that follows the methodologies described in the Highway Capacity Manual (Transportation Research Board). The key factors for performing the LOS analysis are the traffic volumes by movement and the signal timing for signalized intersections. In this case, signal timing information was obtained from the City of Tucson. The results of the LOS analysis are summarized in Figure 7 (morning peak hour) and Figure 8 (evening peak hour).

Based on the capacity analysis, the intersection of Kino Parkway and 22nd Street operates at LOS E during the morning and evening peak periods with average delays of 70 and 74 seconds, respectively. In the morning, the left turns from 22nd Street (both directions) and the northbound through movement on Kino Parkway experience LOS F. In the evening, the critical movements are the westbound left turns and the northbound through lanes, both movements at LOS F. The intersection of Tucson Boulevard and 22nd Street is operationally better than Kino Parkway and 22nd Street with a LOS B and LOS C in the morning and evening peak periods, respectively.

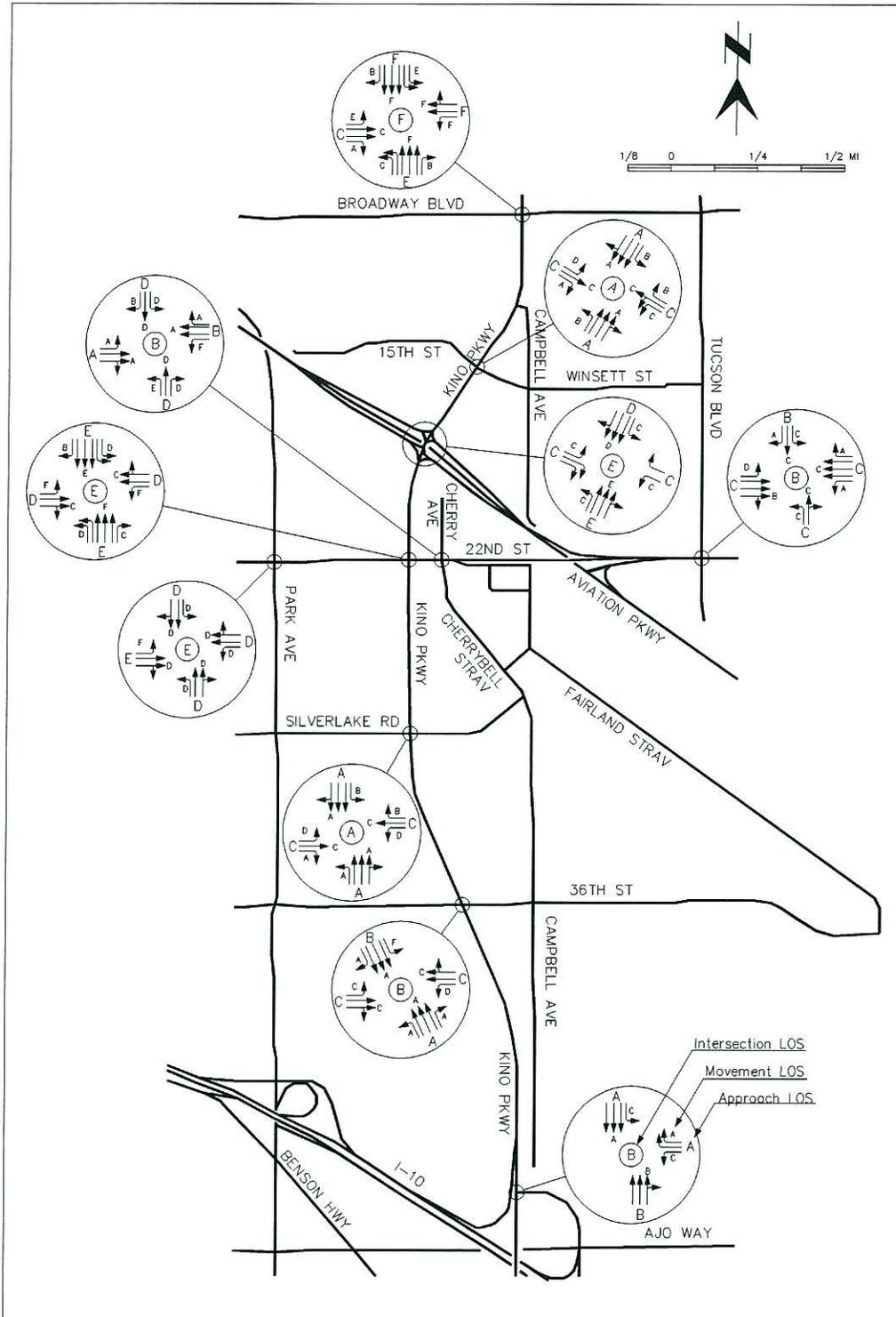


Figure 7: AM Level of Service

Source: MMLA PSOMAS June 2006

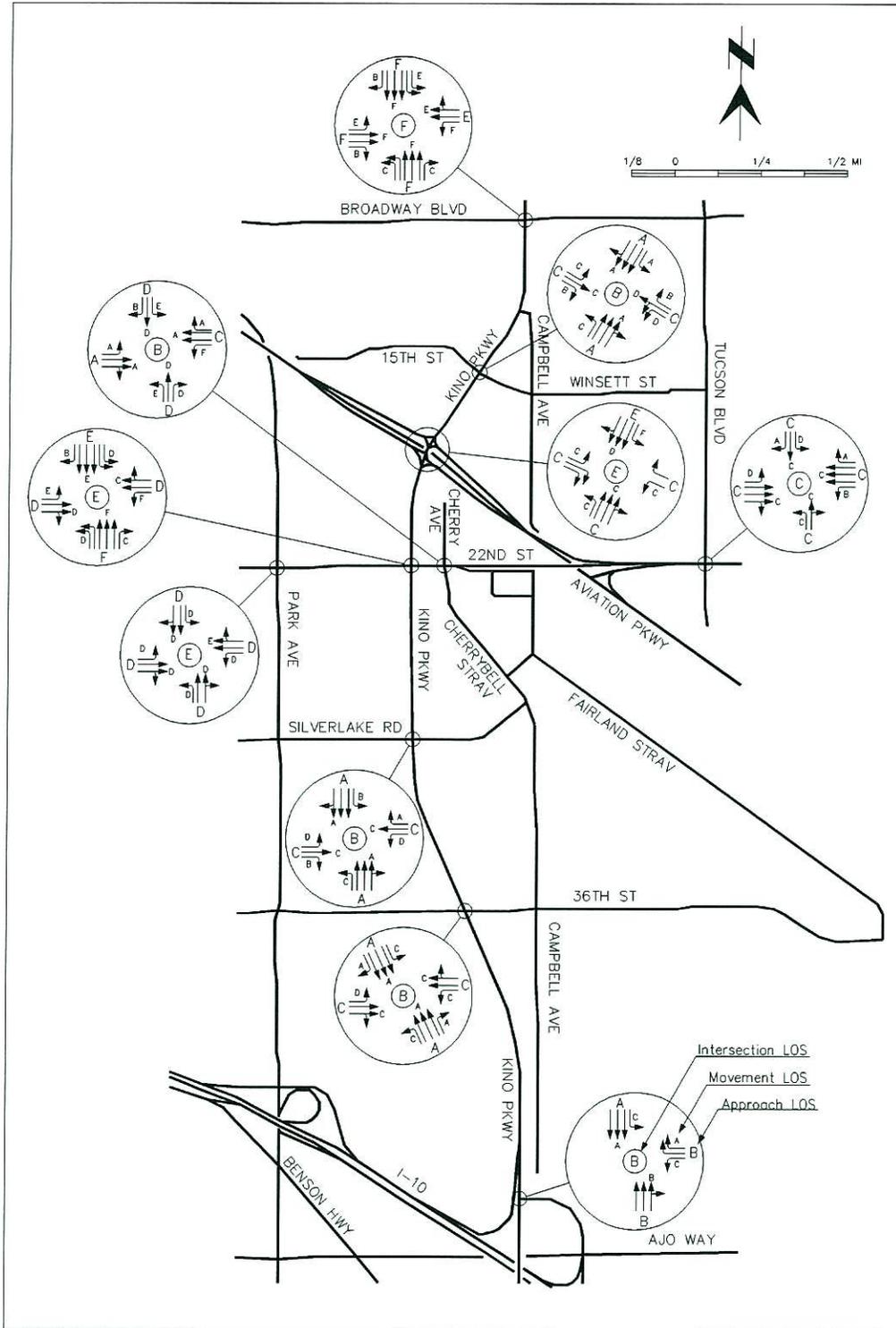


Figure 8: PM Level of Service

Source: MMLA PSOMAS June 2006

All other intersections within the study area currently operate at LOS D or better, with the Broadway Boulevard/Kino Parkway intersection being the exception. This intersection operates at LOS F during the morning and evening peaks with significant delays to all movements.

Movements experiencing LOS F at other locations include the westbound left turns from 22nd Street onto Cherrybell Stravenue (morning and evening), the eastbound left turns from 22nd Street onto Park Avenue (morning), southbound left turns from Kino Parkway onto Barraza-Aviation Parkway (evening), and southbound left turns from Kino Parkway onto 36th Street (morning). Table 2 summarizes the LOS at each intersection within the study area.

Table 2: Level of Service at Intersections within the Study Area

Intersection	AM LOS	PM LOS
Broadway Blvd/Kino Parkway	F	F
Winsett Street/Kino Parkway	A	B
Barraza-Aviation Parkway/Kino Parkway	E	E
22nd Street/Kino Parkway	E	E
Silverlake Road/Kino Parkway	A	B
36th Street/Kino Parkway	B	B
Ajo Way Connection/Kino Parkway	B	B
22nd Street/Park Avenue	E	E
22nd Street/ Cherry Avenue	B	B
22nd Street/Barraza-Aviation Parkway	A	A
22nd Street/Tucson Blvd	B	C

SunTran

Transit service to the 22nd Street corridor between Kino Parkway and Tucson Boulevard is served by three separate SunTran routes. Currently, SunTran Routes 2 and 7 serve the Kino Parkway/22nd Street intersection and SunTran Routes 7 and 15 serve the 22nd Street/Tucson Boulevard intersection (see Figure 9).

Route 2, named “Cherrybell/Country Club,” connects the Laos Transit Center in South Tucson with the Downtown Ronstadt Transit Center. This route, which runs during weekdays every 30 minutes for most of the day (and hourly on weekends), uses 22nd Street between Park Avenue and Cherrybell Stravenue. Along Route 2, a scheduled stop is located at the 22nd Street/Cherry Avenue/Cherrybell Stravenue intersection.

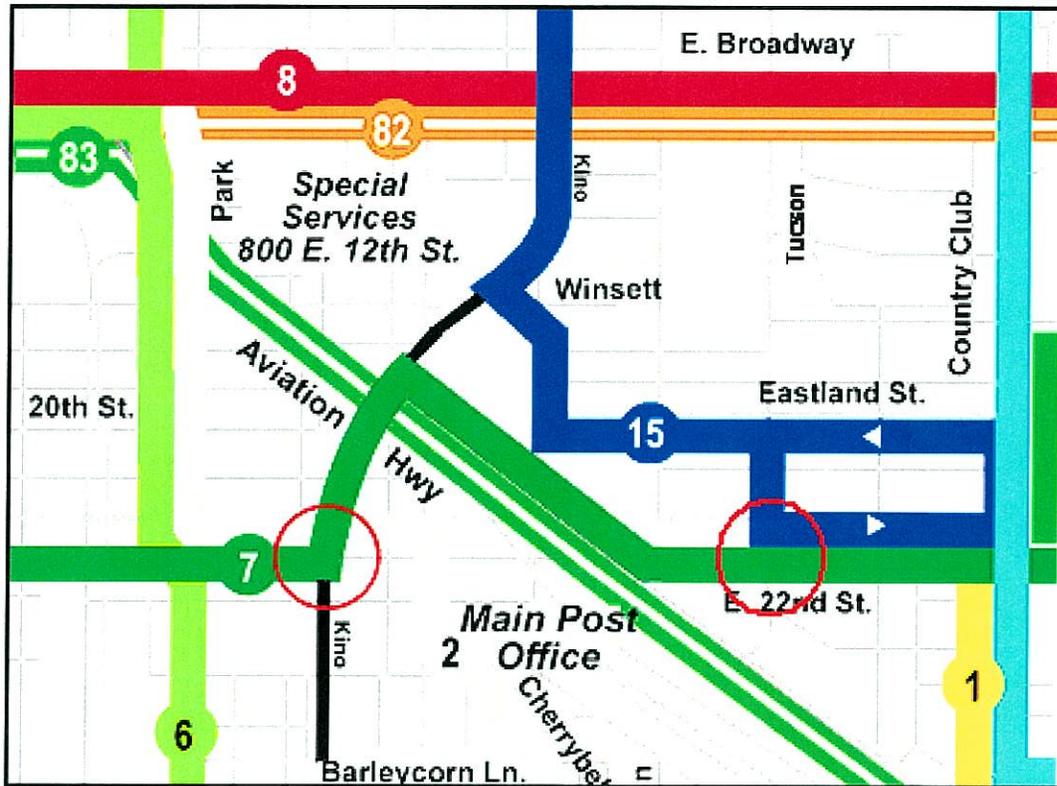


Figure 9: Existing SunTran Bus Service

Route 7, named “22nd Street,” begins at the Golf Links Road/Harrison Road intersection and ends at the Downtown Ronstadt Transit Center. This route runs on 22nd Street from Harrison Road to 10th Avenue, except for a detour to avoid the 22nd Street bridge over Barraza-Aviation Parkway and UPRR. In this area, buses use Kino Parkway and Barraza-Aviation Parkway to detour around the bridge. This route also runs on 30 minute headways for most of the day, from Monday through Friday (and hourly on weekends). Route 7 does not have a scheduled stop along 22nd Street between Kino Parkway and Tucson Boulevard. The closest stop to the study area is on 22nd Street at Park Avenue (approximately three-tenths of a mile west of Kino Parkway).

Route 15, named “Campbell” begins at the 22nd Street/Country Club Road intersection and ends at the Tohono Transit Center at the Tucson Mall. After winding around local streets at the southern end of the route, this route primarily uses Campbell Road, Roger Road, and Stone Avenue. This route runs on 15 minute headways for most of the day, from Monday through Friday (and hourly on weekends). Route 15 does not have a scheduled stop along 22nd Street within the project limits on this route. The nearest stop to the study area is located on 22nd Street at Country Club Road (approximately one-half of a mile east of Tucson Boulevard).

A summary of the main attributes of each route is presented in Table 3.

Table 3: SunTran Weekday Service within Study Area

Route	Direction	Start	End	Trips per weekday	Peak hour headway	Hours of Operation	
						Begin	End
2	Northbound	Laos Transit Center	Ronstadt Transit Center	28	30 min	5:15 AM	7:45 PM
	Southbound	Ronstadt Transit Center	Laos Transit Center	27	30 min	6:00 AM	7:30 PM
7	Westbound	Harrison at Golf Links	Ronstadt Transit Center	30	30 min	6:06 AM	10:39 PM
	Eastbound	Ronstadt Transit Center	Harrison at Golf Links	31	30 min	6:05 AM	10:30 PM
15	Northbound	Country Club at 22nd St.	Tohono Transit Center	57	15 min	5:34 AM	11:37 PM
	Southbound	Tohono Transit Center	Country Club at 22nd St.	54	15 min	5:36 AM	11:27 PM

Note: The Laos Transit Center is located at 6th Avenue and Irvington Road (South Tucson).
 The Ronstadt Transit Center is located at 6th Avenue and Congress Street (Downtown Tucson).
 The Tohono Transit Center is located at Stone Avenue north of Wetmore Road (at the Tucson Mall).

Within the project limits, bus pullouts do not exist, but bus shelters do exist on the northwest and southwest corners of 22nd Street at its intersection with Cherry Avenue. Figure 10 shows the bus shelter at the northwest corner of the 22nd Street/Cherry Avenue intersection.



Figure 10: Bus Shelter on Westbound 22nd Street at Cherry Avenue

Drainage

One major wash, Railroad Wash, crosses 22nd Street between Kino Parkway and Tucson Boulevard. Railroad Wash crosses under 22nd Street immediately east of Barraza-Aviation Parkway. The wash flow is conveyed in a multi-barrel pipe culvert under the Barraza-Aviation Parkway exit ramp, into an open channel under 22nd Street, and finally into a multi-barrel pipe culvert under the Barraza-Aviation Parkway entrance ramp.

As-built plans for 22nd Street show that 22nd Street has no storm drain facilities east of the Barraza-Aviation/UPRR bridge. However, an existing unnamed wash begins just west of the intersection of 22nd Street and Tucson Boulevard and provides conveyance for 22nd Street pavement drainage. This wash feeds into Railroad Wash further downstream. West of the Barraza-Aviation/UPRR bridge, drainage from 22nd Street is captured in an underground storm drain system for Kino Parkway. The outfall for this storm drain system is an earthen channel near 20th Street and Curtis Avenue.

Floodplain Complaint and Field Investigation Reports were obtained from the City of Tucson. The records reviewed covered the area bordered by Tucson Boulevard on the east, Park Avenue on the west, 18th Street on the north, and Silverlake Road on the south. A total of 25 complaints were received from residents and merchants in this area between March 18, 1984 and September 26, 2006. The nature of the complaints typically involved the local flooding caused by clogged facilities or sheetflow breaking out of streets and impacting adjacent structures. Only one of the complaints was located on 22nd Street, and was a direct result of the insufficient capacity of the unnamed wash at the east end of 22nd Street.

Utilities

As-built roadway plans indicate that several utilities are located on the east and west side of the bridge over the UPRR. However, the majority of utilities do not cross the railroad property. Sanitary sewer, gas, and water are located on both sides of the bridge. Overhead power is limited to the 22nd Street/Cherrybell Stravenue intersection. The only large diameter utilities include a 27-inch-diameter sanitary sewer on the east side of the bridge and a 30-inch-diameter water line that runs east-west in 22nd Street east of the bridge, and veers to the south as it crosses the railroad property to the west. The sanitary sewer continues to the north prior to reaching the railroad property. Consequently, the 30-inch water line is the only utility that crosses UPRR property at the 22nd Street overpass.

Street lights are spaced approximately 200 feet apart on either side of 22nd Street. On Barraza-Aviation Parkway, street lights are located on either side of the roadway, and are spaced approximately 300 feet apart.

Bike Routes

According to the Tucson Metro Bike Map (updated September 2006), 22nd Street from 4th Avenue to Cherrybell Stravenue is a designated bike route with striped shoulders. The remainder of 22nd Street within the project limits does not have any bike route designations due to the limited width available to accommodate bike lanes.

In addition to bike routes, there is a shared-use path located on the east side of the Barraza-Aviation Parkway. The path extends from Escalante Road and Kolb Road to downtown

Tucson, and serves a significant role providing a connection between these two points. The width of the path varies between 10 ft and 16 ft in the vicinity of the project.

Pedestrian Facilities

Pedestrian facilities on 22nd Street are currently limited to sidewalks on the existing 22nd Street bridge over the UPRR facilities. The sidewalks on the bridge are approximately 4 feet wide, and are protected from the adjacent traffic by a concrete barrier. In addition, there is a short segment of 4-foot-wide sidewalk across a single property at the northeast corner of Plumer Avenue and 22nd Street. The adjacent shared-use path on Barraza-Aviation Parkway is a separate facility and is not connected to the pedestrian facilities on 22nd Street.

Right-of-Way

At the west end of the study area, the City of Tucson owns parcels on both the north and south side of 22nd Street that are identified as Kino Parkway right-of-way. These parcels extend north and south, following the Kino Parkway alignment. In the segment of 22nd Street between Kino Parkway and the UPRR, the existing right-of-way is approximately 145 feet wide. Existing right-of-way width on the east side of the bridge is generally 130 feet, but varies from 170 feet at the bridge to 120 feet at the intersection with Tucson Boulevard. The existing bridge over the UPRR maintenance yard is within a 96-foot right-of-way corridor. Additional right-of-way will be required.

Bridge Structures

There are two bridge structures in the vicinity of the project; 22nd Street where it extends over Barraza-Aviation Parkway and the UPRR tracks, and a separate pedestrian bridge over the UPRR tracks just south of 22nd Street. The 22nd Street bridge structure crosses at the north end of the UPRR maintenance yard where the tracks are increasing in number as they approach the yard. The bridge structure is approximately four-tenths of a mile long, and is located roughly between Warren Avenue on the west and Plumer Avenue on the east. The structure is steel, and is a four-lane facility with an eight-foot-wide raised median and four-foot-wide sidewalks behind a barrier. No striped bike lanes are present. The condition of the bridge is sufficient for passenger vehicles, but larger vehicles and trucks are being detoured to adhere with weight restrictions. The weight restrictions were imposed in 2003 and further limits were applied in 2005. The bridge needs to be replaced before weight restrictions are lifted and the detour is removed.

The pedestrian bridge south of 22nd Street is a steel structure that is intended to provide a safe means of crossing the track for UPRR employees. At its closest point, the bridge is approximately 50 feet from the 22nd Street bridge.

Zoning and Land Usage

Zoning

According to the City of Tucson's *Land Use Code*, 22nd Street between Kino Parkway and Tucson Boulevard is comprised of zones that incorporate various mixed land uses including residential, commercial, industrial, and office. Figure 11 illustrates the zoning designations within the study area. The 22nd Street/Kino Parkway intersection and the area between it and Cherry Avenue/Cherrybell Stravenue are designated as an R-2 zone. The R-2 zone is

designated for medium density residential uses; multifamily and single-family residences are permitted. This zone provides for medium density single-family and multifamily, residential development, together with schools, parks, and other public services necessary for an urban residential environment.

The industrial I-1 zone is another prominent land use category along 22nd Street within the study area. The area to the east between Cherry Avenue/Cherrybell Stravenue and Plumer Avenue is generally designated as the I-1 zone. This area includes the crossing of the UPRR tracks and Barraza-Aviation Parkway. This zone is designated for light and heavy industrial uses. Commercial, industrial, and manufacturing land uses are permitted in this zone. Residential uses are generally prohibited in the I-1 zone.

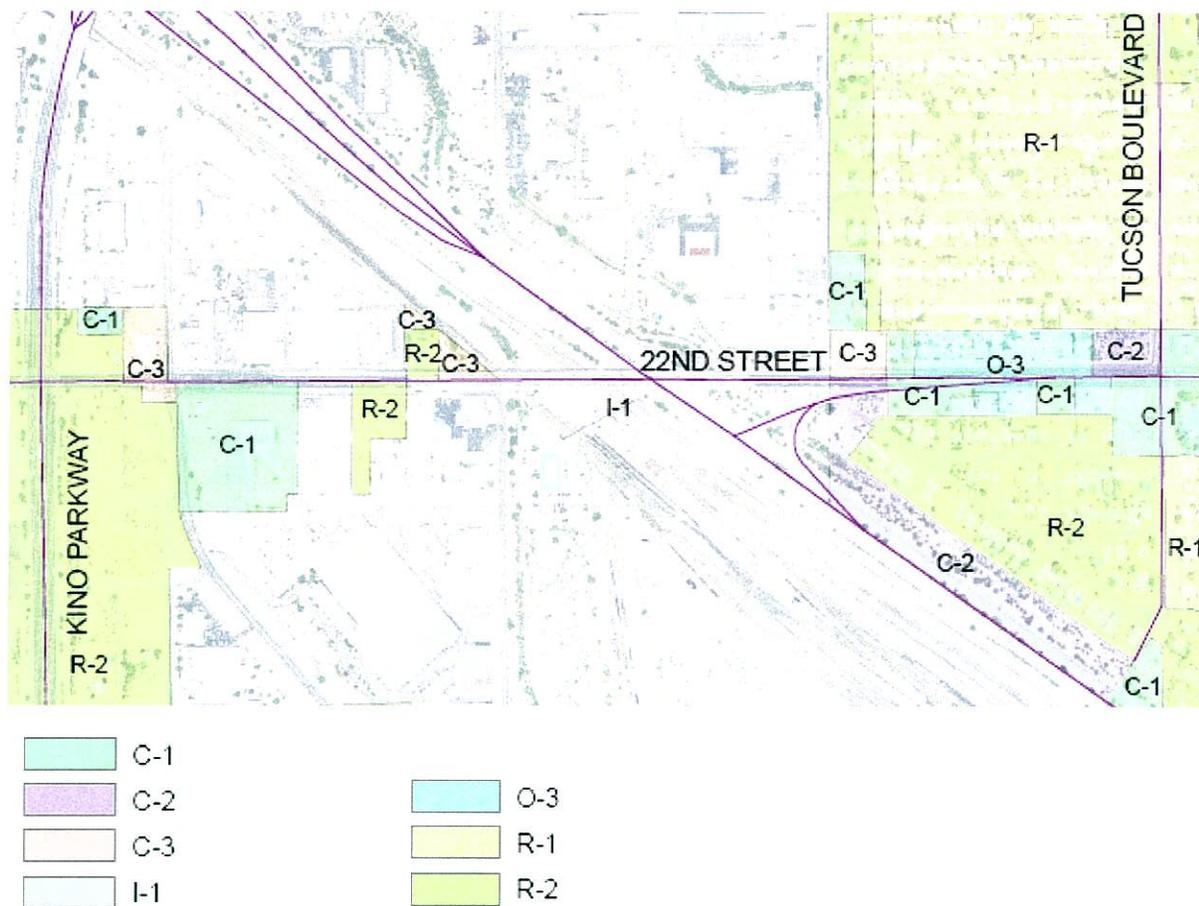


Figure 11: City of Tucson Zoning within the Study Area

Select zones are designated for commercial land use embedded between the R-2 zones around the Kino Parkway/22nd Street intersection and the I-1 zones to the east. The C-1 zone is designated for local commercial land uses. Activities in this zone are limited to retail sales with no outside display or storage. Office, residential development, and restaurants are permitted in this zone. The C-2 and C-3 zones are designated for general and intensive commercial uses. Retail commercial with wholesale, nightclubs, bars, and amusement enterprises are permitted in these zones. A full range of automotive activities including sales,

repair, and leasing is permitted in these zones. Limited manufacturing is also permitted in these zones.

Between Plumer Avenue and Tucson Boulevard, the 22nd Street corridor is generally zoned for commercial uses (C-1, C-2, and C-3). The exception in this area is the inclusion of zones designated for office uses (the office land use code O-3). The O-3 zone is designated for professional and semiprofessional office use, high-density residential developments, and limited research and development uses.

Land Use

The City of Tucson owns parcels adjacent to 22nd Street on the north side across from the right-of-way of Kino Parkway. South of 22nd Street, the land within the study area is generally undeveloped. The City owns sporadic identified parcels within this area.

The nature of development in the area between Kino Parkway and Barraza-Aviation Parkway is generally industrial. The Kalil Bottling Company owns a facility located on the west side of Kino Parkway south of Barraza-Aviation Parkway (approximately 2/10 of a mile northwest of the Kino Parkway/22nd Street intersection). In addition, the U.S. Postal Service main post office is located on the south side of 22nd Street on the west side of Campbell Avenue. The Arizona Board of Regents also owns a storage warehouse facility on the north side of 22nd Street at Warren Avenue.

Between Barraza-Aviation Parkway and Tucson Boulevard, the nature of development is predominately residential with a few commercial uses near the intersection of 22nd Street and Plumer, and the intersection of 22nd Street and Tucson Boulevard.

There are two Neighborhood and Area Plans that are affected by the alternatives. Greater South Park Plan covers the area north and south of 22nd Street and west of Barraza-Aviation Parkway, and Arroyo Chico Plan covers the area north and south of 22nd Street and east of Barraza-Aviation Parkway.

B. Comparative Impact Assessment

Traffic

The three alternatives will all have the same level of improvement to traffic operations on 22nd Street. With three lanes in each direction, the road will have sufficient capacity to accommodate the 2030 traffic projections. The circulation between north and south of 22nd Street differs between each alternative. However, the circulation concepts were developed to be interchangeable between the alternatives, so a comparative assessment of circulation is not warranted. The minor reverse curves in the horizontal alignments provided to shift the alignment to the north or the south do not affect traffic operations.

SunTran

All three alternatives will provide improved conditions for SunTran operations. When the new bridge is constructed, time delays caused by the detour will no longer be a hindrance to operations.

Drainage

Adding another travel lane in each direction will increase the drainage due to the new impervious surface area. However, the additional runoff is essentially the same for all three alternatives.

Utilities

The impact on existing utilities varies between the three alternatives. All three alternatives will require adjustments of manhole rims for sanitary sewer and valve lids for water and gas facilities on either side of the existing bridge. However, the 30-inch water main crossing thru the UPRR property could potentially be impacted by the bridge piers. Since the water main veers to the south, the potential for impacts is least with Alternative 3, greater with Alternative 1, and the greatest with Alternative 2.

Bike Routes

All three alternatives will provide bike lanes as part of the new roadway typical section (see Figure 2). In addition, these new facilities will connect to the existing shared-use path for bike and pedestrian use adjacent to Barraza-Aviation Parkway. The location of the roadway does not have a significant influence on how the connection will be made. Consequently, impacts of all three alternatives are considered the same.

Pedestrian Facilities

Improved pedestrian facilities adjacent to 22nd Street will be provided by all three alternatives. Sidewalks on 22nd Street will be a minimum of 6 feet wide behind the curb, and will be wider on the bridge to provide sufficient room for a barrier to separate pedestrians from traffic. Crosswalks will be required at all ramps to link sidewalk on the bridge with the sidewalk on the roadway. All three alternatives will have crosswalks on the two Barraza-Aviation Parkway ramps east of the bridge. In addition, Alternative 1 will have a crosswalk on the eastbound 22nd Street slip-ramp that accesses Campbell Avenue.

Right-of-Way

Widening 22nd Street will require additional right-of-way, regardless of which alternative is selected. East of the bridge, the majority of properties on the both north and south sides of 22nd Street are directly impacted. While the impacts to each property are slightly different between alternatives, all of these properties are impacted to some degree and will likely need to be acquired. On the west side of the bridge, the impacts are different for each alternative.

Alternative 1 widens symmetrically about the existing centerline, and consequently impacts both sides of the roadway. The frontage of businesses on either side of 22nd Street will be impacted. On the north side, buildings will likely be impacted. On the south side, the buildings are farther back, but parking will likely be impacted.

Alternative 2 shifts the roadway to the south and significantly impacts the small businesses on the south side of 22nd Street. The impact to these properties will likely impact the buildings on the properties. In addition, the roadway will directly impact a steel pedestrian bridge crossing

over the UPRR maintenance yard. The pedestrian bridge is intended for use by UPRR employees only.

Alternative 3 shifts the roadway to the north and therefore impacts the businesses on the north side of 22nd Street. The large University of Arizona warehouse on the northeast corner of 22nd Street and Warren Avenue, and the Walsh Brothers business on the northwest corner of 22nd Street and Warren Avenue will likely be directly impacted as will the other smaller businesses on the north side of 22nd Street.

Bridge Structures

The impact of the new bridge structure is different for each alternative. The location of the new bridge relative to the existing 22nd Street bridge influences the construction sequencing and traffic operations during construction. In addition, the location of the bridge relative to the UPRR maintenance yard will dictate the pier spacing, and consequently the depth of the bridge structure itself. As the pier spacing increases to avoid existing rails, the bridge structure must be deeper, and the 22nd Street roadway profile must be higher to meet required clearances over the railroad.

Under Alternative 1 (symmetrical widening), the new bridge must be constructed in the same location as the existing bridge. The roadway could be shut down for construction and all 22nd Street traffic re-routed, but it is more likely that traffic will need to be maintained on 22nd Street. Construction sequencing will most likely maintain one lane of traffic in each direction on one half of the existing bridge while the other half is demolished and replaced by one-half of the new bridge. With regards to structure depth, the pier spacing requires a structure depth of approximately 10 feet. This alternative does not impact the UPRR pedestrian bridge.

Under Alternative 2 (shift to the south), the new bridge will be constructed to the south of the existing bridge. During construction, the new bridge can be built without impacting the existing bridge, and two lanes of traffic in each direction can be maintained on the existing bridge. However, the shift to the south directly impacts the UPRR pedestrian bridge. With regards to structure depth, the pier spacing requires a structure depth of approximately 11 feet.

Under Alternative 3 (shift to the north), the new bridge will be constructed to the north of the existing bridge. As for Alternative 2, two lanes of traffic in each direction can be maintained on the existing bridge during construction. With regards to structure depth, the pier spacing requires a structure depth of approximately 8 feet. This alternative does not impact the UPRR pedestrian bridge.

The City is proposing a future 22nd Street connection to Barraza-Aviation Parkway. The connection will provide access for northbound and southbound Barraza-Aviation Parkway traffic onto westbound and eastbound 22nd Street traffic, respectively. In addition, an eastbound 22nd Street to southbound Barraza-Aviation Parkway will be provided, and the existing westbound 22nd Street to northbound Barraza-Aviation Parkway connection will be maintained. The exact location of the connection has not yet been determined, but the design of the new 22nd Street bridge structure will not preclude this connection. A structure selection report will be prepared to determine the best bridge type for this crossing.

Zoning and Land Use

The existing zoning will not be modified as a result of any of the three alternative alignments. The land use will change on the east end in particular since it is likely that the properties will be acquired under each of the alternatives. A Land Use study will determine the best use of the remnant parcels resulting from any of the alternatives selected.

Additional Assessment Criteria

In addition to the comparative assessment criteria identified above, another list of evaluation criteria was developed by the project team, and approved by the Technical Advisory Committee (TAC) and the Citizens Advisory Committee (CAC) established for this project. The interests represented on the TAC include transit, bike/pedestrian, City of Tucson Traffic, Tucson Water, University of Arizona, U.S. Postal Service, area businesses, Pima County Department of Transportation, PAG, Fire Department, Tucson Unified School District, and City of Tucson Planning. The criteria, which overlaps with the criteria listed above included:

- Traffic Operations During Construction
- Traffic Operations After Construction
- Alternative Modes
- Environment
- Land Use
- Union Pacific Railroad
- Costs

The criteria listed above were further refined by identifying sub-criteria for each of the main topics. A matrix containing the main and sub-criteria was subsequently developed as a tool for evaluating the alternatives (See Appendix B).

C. Evaluation of Comparative Impact Assessment

The TAC compared the alternatives with respect to the criteria listed above at an October 16, 2007 meeting. In addition, a matrix evaluation for each alternative was performed at the meeting. A copy of the completed matrix is contained in Appendix B.

The matrix evaluation ranked how well the alternative minimized impacts on each of the subcriteria items. Circles divided into quarters were filled out and the results tallied, with the higher number representing the better of the alternatives. Alternative 1, Alternative 2, and Alternative 3 received 95, 104, and 106 quarters respectively. Because the results were so close, another alternative layout was developed by incorporating the favorable elements from the other alternatives and combining them with Alternative 3 to make an operationally superior layout referred to as Alternative 3A. The changes incorporated to create Alternative 3A include:

- Provide a connection via Campbell Avenue under the bridge for the area north and south of 22nd Street.
- Pull the bridge structure as close to the existing structure as possible, leaving sufficient room to keep two lanes of traffic in each direction operational during construction.

- Provide an eastbound slip ramp at approximately the same location as the existing slip ramp
- Make Plumer Avenue a right-in/right-out only
- Provide a cul-de-sac at Wilson Avenue rather than allowing right-in/right-out.
- Make the eastbound exit ramp from Barraza-Aviation Parkway to eastbound 22nd Street a trap lane at Tucson Boulevard

The new layout, Alternative 3A, was presented to the TAC at a November 2007 meeting, and the revised layout was approved by the committee. Alternative 3A was also presented to the CAC, and was subsequently endorsed by the CAC at their January 2008 meeting.

D. Conclusions – Preferred Alternative

Alternative 3A was developed after receiving input from the TAC established for the project. The aspects of the alternative incorporated design points from the three original alternatives that were developed. Alternative 3A was also presented to the CAC at their December 2007 meeting. The CAC endorsed Alternative 3A in their January 2008 meeting. The preferred alignment is shown in Figure 12.

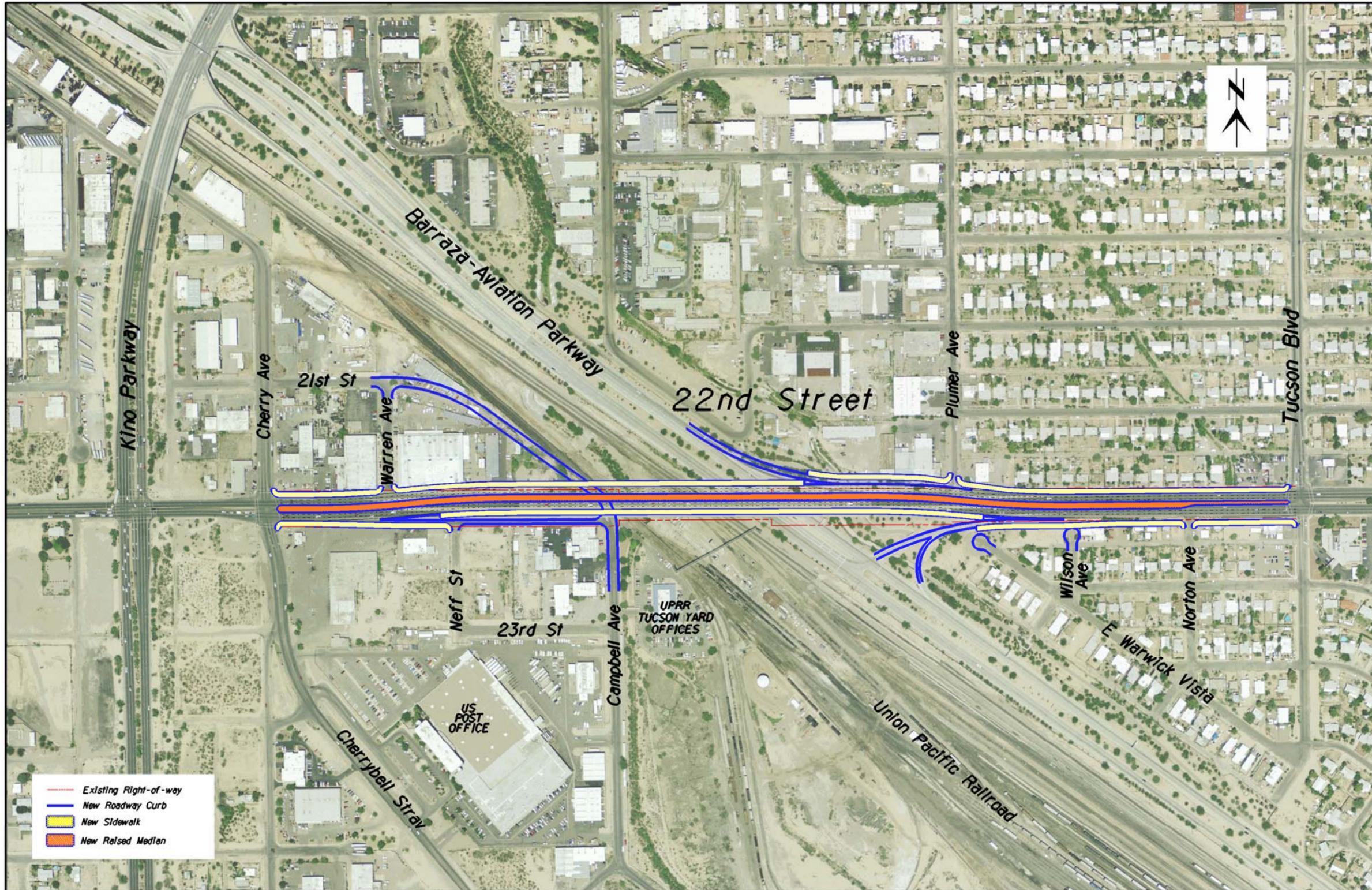


Figure 12: Preferred Alternative Alignment 3A

E. Public Outreach

The alignment of 22nd Street directly impacts the properties located along 22nd Street, and indirectly impacts the neighborhoods and businesses in the vicinity. As such, public outreach is an important element of the project. To date, public outreach has included one-on-one meetings with the property owners along 22nd Street, presentations to adjacent neighborhood associations, presentations to the Citizens Transportation Advisory Committee, and presentations to the general public through an open house meeting and the on-going CAC meetings. Comments from the public and the CAC members have been received on the project, and these comments will be carried forward into the preparation of the Environmental Design and Mitigation report (ED&MR), and the 15% design plans contained in that report. These comments include:

- If the first row of houses on 22nd Street is removed, consider screen walls or noise walls to protect the houses behind them.
- Don't inflate the cost of the design. Reduce median widths and use existing pavement where possible.
- If there are going to be artistic treatments, can some of them be designed by the residents and/or kids?
- Bike lane access off of the bridge needs to be safe.

IV. RECOMMENDATION

A. Proposed Action

With the endorsement of both the TAC and the CAC, it is recommended that the improvement project be moved forward with Alternative 3A as the preferred alternative. In keeping with the intent of the Roadway Development Policies, it is recommended that an ED&MR be prepared to further analyze the environmental items typically covered in the ED&MR, and the additional criteria established for the matrix evaluation. The criteria include:

Environmental Components

Neighborhood

Traffic Operations After Construction

Land Use

Alternative Modes

Traffic Operations During Construction

Construction Costs

Union Pacific Railroad

Appendix A: Advance Planning Report

INTRODUCTION

Metropolitan Transportation Plan

To address challenges created by the region’s current transportation needs and its continuing growth, the 2030 Regional Transportation Plan (RTP) provides a long-range vision of the region’s transportation needs for planning purposes. The RTP considers possible future conditions, but does not make a financial commitment to provide funding for specific projects. The RTP identifies a balanced set of multi-modal projects, policies, and strategies to help move people and goods efficiently and to promote consistency of action among federal, state, regional, and local agencies. The Pima Association of Governments (PAG) Regional Council adopted the RTP on June 29, 2005.

Another important regional transportation planning tool available to transportation infrastructure projects in Tucson is the Regional Transportation Authority (RTA) plan and sales tax that were ratified on May 16, 2006. This plan included the passage of a ½ cent sales tax to generate revenue to pay for the improvements included in the RTA plan. It earmarks \$2.1 billion over the next 20 years for improvements to 35 roadway projects within Tucson.

One of the 35 roadway improvement projects included in the RTA plan is 22nd Street from I-10 to Tucson Boulevard. This project segment includes the section of 22nd Street between Kino Parkway and Tucson Boulevard. This improvement project consists of capacity and accessibility enhancements, as well as a new bridge over the Union Pacific Railroad (UPRR) tracks. The RTA estimated the cost of the improvement project on 22nd Street from I-10 to Tucson Boulevard at approximately \$105 million. The 22nd Street Corridor project is included in the PAG 2007-2011 Transportation Improvement Program. A corridor map is provided below.



Proposed Improvements

The 22nd Street Corridor project is identified by the RTA as a key east-west corridor within the City of Tucson. Among other proposed improvement projects along 22nd Street, this project will widen the roadway from four to six lanes between Kino Parkway and Tucson Boulevard. The following additional design elements will also be included:

- ✓ Six-lane bridge over UPRR tracks
- ✓ ADA-accessible sidewalks & crosswalks
- ✓ Continuous street lighting
- ✓ Raised, landscaped median
- ✓ Bike lanes in each direction
- ✓ SunTran service improvements
- ✓ Public art opportunities
- ✓ Future connection to Barraza-Aviation Parkway

Justification for the Project

This improvement project on 22nd Street will increase roadway capacity, provide greater pedestrian and bicycle safety, and expand existing SunTran bus service. The likely benefits of this improvement project will include greater vehicular capacity by adding one lane in each direction with additional turn lanes at Kino Parkway, extended SunTran service hours, as well as intersection improvements, thereby enhancing vehicular throughput and pedestrian safety. After considerable public input and opportunities for stakeholders to provide feedback to project engineers, the RTA plan and sales tax was approved by voters.



Proposed Design Concept Features

Roadway type and cross section

According to the *Major Streets and Route Plan*, a typical high-volume arterial should consist of six travel lanes, a raised median with storage for turning vehicles, and an area on each side for sidewalks, utilities, and street furniture.

Transit and Bikeway Improvements

Several transit and bikeway improvements are anticipated in the project area as part of the recently approved RTA plan. The most significant transit service improvements on the 22nd Street Corridor include:

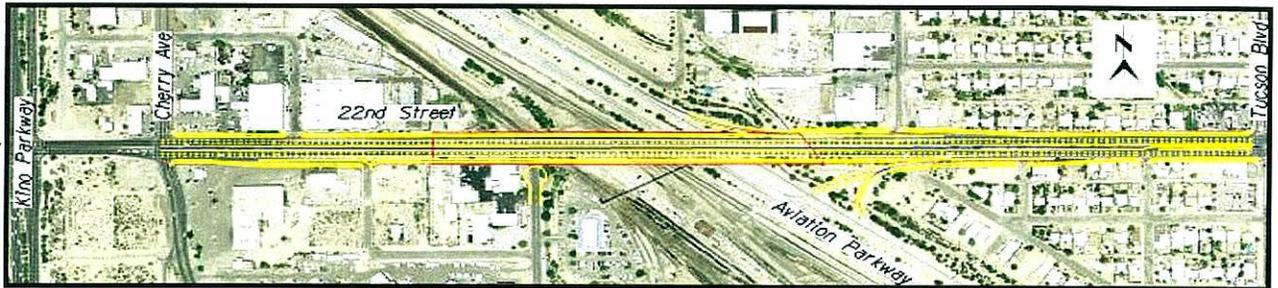
- Extended weekday evening bus service to 11:00 p.m.
- Improved weekday bus frequencies from 30 minutes to 15 minutes during peak hours
- Extended weekend bus service from 6:00 a.m. to 9:00 p.m. on Saturday, and 7:00 a.m. to 8:00 p.m. on Sunday
- New bus shelters, new low-floor buses, and bus pull-outs

In addition to the planned transit improvements, new bike lanes are also planned as part of the new Kino Boulevard/22nd Street intersection as well as the 22nd Street corridor from I-10 to Kino Boulevard.

Preliminary Alternatives

Three alternatives have been considered for the 22nd Street improvement, as identified below. Alternative 1 would maintain the existing alignment of 22nd Street, which would require closure of the roadway or reduction of travel lanes to one in each direction during the reconstruction of the bridge over Barraza-Aviation Parkway and the UPRR tracks. The other two alternatives would allow continuous two-way, two-lane maintenance of traffic on 22nd Street during roadway construction through the shifting of traffic on a newly-constructed roadway and bridge structure either directly to the north or to the south of the existing 22nd Street alignment. Alternative 2 would shift 22nd Street to the south of the existing 22nd Street alignment. Alternative 3 would shift 22nd Street to the north of the existing 22nd Street alignment. All of these alternatives would stop short of Kino Parkway and allow the Kino Parkway Overpass at 22nd Street project alternatives to be developed concurrently. Design and subsequent construction of the 22nd Street from Kino Parkway to Tucson Boulevard project would occur simultaneously with the Kino Parkway Overpass project.

Alternative 1
Maintain 22nd St.
Alignment



Alternative 2
Shift 22nd St.
to the South



Alternative 3
Shift 22nd St.
to the North



Location and Project Limits

22nd Street is a major east-west arterial through central Tucson. It extends from I-10 connecting to Starr Pass Boulevard and western City of Tucson neighborhoods on the west to Melpomene Way and many other north-south arterials to the east. The specific area studied for this project extends more than eight-tenths of a mile on 22nd Street, between Kino Parkway and Tucson Boulevard.

Existing Conditions**Average Daily Traffic (ADT)**

According to the latest PAG traffic counts, the ADT on 22nd Street west of Barraza-Aviation Parkway is 41,100 vehicles per day (vpd) and east of Barraza-Aviation Parkway is 49,700 vpd. Both volumes are well above the capacity of a four-lane roadway, which is approximately 35,000 vpd.

Level of Service (LOS)

The Cherry Avenue/22nd Street intersection currently operates at LOS B during the morning and afternoon peak hours, and the Tucson Boulevard/22nd Street intersection currently operates at LOS C in both peak hours, suggesting that both intersections are operating with an acceptable level of delay. However, at the Cherry Avenue/22nd Street intersection, northbound and southbound left turns and northbound right turns all operate at LOS E in the afternoon peak hour. Furthermore, westbound left turns operate at LOS F during the afternoon peak hour. At the Tucson Boulevard/22nd Street intersection, eastbound and southbound left turns operate at LOS D during both the morning and afternoon peak hours. Based on the Florida Quality/Level of Service Tables, 22nd Street exceeds the maximum volume for LOS E, indicating operation at LOS F.

Transit

SunTran Route 7, named "22nd Street," serves 22nd Street near Tucson Boulevard. The route begins downtown and ends at the intersection of Golf Links Road and Harrison Road. This route runs on 22nd Street from 10th Avenue to Harrison Road, except for a detour to avoid the 22nd Street overpass at Barraza-Aviation Parkway and the UPRR due to current weight restrictions imposed on the structure (15 ton maximum). The route runs every 30 minutes for most of the day, Monday through Friday. On weekends, the route runs a limited schedule with one bus per hour.

Routes 15 and 83 are adjacent to the project area. Route 15, "Campbell Avenue," runs from the Tohono Transit Center at the Tucson Mall to the intersection of Country Club and 22nd Street. Route 83, "Golf Links Express," runs from downtown to the intersection of Golf Links Road and Harrison Road. The route runs on Barraza-Aviation Parkway from Broadway Boulevard to Golf Links Road.

Future Conditions**ADT and LOS without Improvement**

ADT volumes for 2030 were obtained from PAG. It should be noted that traffic volumes addressed here are not official PAG forecasts because PAG is currently in the process of updating its projections, and because some modifications were made to the model used for this analysis to include development projects that are currently in the regulatory approval process.

The modified PAG model anticipates that the ADT on 22nd Street will increase to 67,700 vpd west of Barraza-Aviation Parkway and to 81,700 vpd east of Barraza-Aviation Parkway. These volumes will require a six-lane roadway with strict access management strategies in order to handle the traffic demand.

The Cherry Avenue/22nd Street intersection is expected to operate at LOS F in both the morning and afternoon peak hours. Eastbound and westbound through movements are expected to operate at LOS F during the morning peak hour with average delays over 170 seconds per vehicle. Furthermore, northbound and southbound left turns are also expected to operate at LOS F in the afternoon peak hour.

The Tucson Boulevard/22nd Street intersection is expected to operate at LOS E during the morning peak hour and at LOS F during the afternoon peak hour. Westbound and northbound through movements and southbound left turns are expected to operate at LOS F during the morning peak hour. The average delay per vehicle for all three movements is expected to be over 110 seconds. In the afternoon peak hour, eastbound and southbound left turns, westbound, northbound, and southbound through movements, and southbound right turns are expected to all operate at LOS F. The average delays for those movements operating at LOS F will range from 83 to 248 seconds per vehicle.



Mitigation Measures

Environmental

In accordance with the City of Tucson Department of Transportation Roadway Development Policies, Ordinance No. 6593, an Environmental Assessment and Mitigation Report (EAMR) will be required. The EAMR will address the potential social, economic, and environmental impacts caused by the proposed improvements, and will recommend mitigation strategies. Included will be an inventory of existing conditions, an assessment of impacts, and proposed design features that implement the mitigation. Methods of mitigation that could be incorporated into the design include:

- Wall, bridge, and drainage structure architectural treatments
- Pedestrian, bicycle, public transit facilities
- Opportunities for public art
- Drainage channel stabilization using natural materials
- Viewshed preservation through deliberate orientation of improvements
- Continuous access will be provided during construction
- Frontage roads
- Under-grounding of overhead utility facilities during construction
- Investigation into available archaeological, cultural, and historic resources

Union Pacific Railroad (UPRR)

As part of this improvement project, a new six-lane bridge over the railroad tracks from Kino Parkway to Tucson Boulevard will be constructed. This new bridge is necessary due to deficiencies of the existing bridge, including limited sight distance and weight restrictions. Due to these deficiencies, heavy vehicles including SunTran buses are not permitted on the existing bridge. Coordination between the City and UPRR will be necessary because the improvement project will traverse the UPRR facility. The primary issues with the improvement project will be maintaining clearance over the UPRR tracks, and the location of the piers for the bridge relative to the existing tracks. Furthermore, because the new bridge might adversely affect the adjacent pedestrian bridge, coordination between the City and UPRR to mitigate the impact on the pedestrian bridge will be necessary. The coordination with UPRR will likely impact the project schedule due to the need to integrate the review procedures of UPRR and incorporate any comments they may make into the design process.

Neighborhood

Community input is a major component of this project. Adjoining neighborhoods and concerned property owners are included in developing this project's vision and its mitigation measures to protect the integrity of the social, economic, and environmental fabric of the community. The public, through a COT Transportation Director appointed by the Citizens Advisory Committee (CAC), has been involved from the outset with the design team listening to neighbors and local businesses relate their vision for the project. The design team incorporates this public input and injects it into the project design process. The project will also include at-large public participation and input in both the planning and design phases with public meetings held by COT DOT. Also, the Citizens Transportation Advisory Committee will be involved.

IMPLEMENTATION STRATEGIES

Estimated Monies Earmarked from RTA Funding

The RTA has programmed \$105 million for improvements on 22nd Street from I-10 to Tucson Boulevard/Barraza-Aviation Parkway. Planning level construction cost estimates will be determined for alternative assessment as the project proceeds.

Conceptual Programming Timeframe

The planning-level analysis and design for the project is estimated to take a total of two years. Construction is expected to follow design and last approximately 18 months. The 20-year RTA improvement plan is divided into four fiscal periods. RTA indicates that construction of the 22nd Street Corridor project will occur during the second period (FY 2012 thru FY 2016) and third period (FY 2017 thru FY 2021).

RECOMMENDATIONS

The goals of the 22nd Street between Kino Parkway and Tucson Boulevard transportation improvement project are to provide a more efficient and safe transportation facility, to protect the integrity of the community, and to blend with the natural and man-made environment. To successfully complete these goals, the following will be required:

- Begin analysis of land-use opportunities that correspond with identified alternatives.
- Proceed with an Alternative Alignment Report (AAR) as detailed in the COT Roadway Development Policies.
- Advance AAR to a point coincident with AAR for the Kino Parkway/22nd Street intersection project.
- Continue policy, planning, and public involvement procedures for the 22nd Street from Kino Parkway to Tucson Boulevard project in conjunction with the development of the Kino Parkway/22nd Street intersection.



Appendix B:
Evaluation of Alternatives and Decision Matrix



KINO PARKWAY – 22ND STREET INTERSECTION & WIDENING TO TUCSON BOULEVARD



Revised 11-13-07

DECISION CRITERIA	22nd St. Corridor and Bridge Criteria ranked from being most desirable to being least desirable.		
	Alt 1 Middle Alignment	Alt 2 South Alignment	Alt 3 North Alignment
Traffic Operations After Construction			
<i>(How well does the alternative improve:)</i>			
way-finding			
traffic progression/signal coordination			
safety of bike, pedestrians & vehicles			
capacity			
business access			
neighborhood access			
Land Use			
<i>(How well does the alternative provide opportunities for:)</i>			
redevelopment of excess land			
parks/open space/landscaping			
integration of functional aesthetics			
Environmental			
<i>(How well does the alternative provide opportunities for:)</i>			
minimizing impact to adjacent properties			
neighborhood screening			
improving drainage			
equitable benefits/impacts to surrounding areas			
Alternative Modes			
<i>(How well does the alternative provide opportunities for:)</i>			
bicycle facilities			
pedestrian facilities			
transit facilities			
connectivity to other alternate modes facilities			



KINO PARKWAY – 22ND STREET INTERSECTION & WIDENING TO TUCSON BOULEVARD



Revised 11-13-07

DECISION CRITERIA	22nd St. Corridor and Bridge Criteria ranked from ● being most desirable to ⊕ being least desirable.		
	Alt 1 Middle Alignment	Alt 2 South Alignment	Alt 3 North Alignment
Traffic Operations During Construction			
<i>(How well does the alternative improve:)</i>			
way-finding	●	●	●
continuity of travel	⊕	●	●
expedited construction schedule/phasing	⊕	●	●
maximizing number of travel lanes open	⊕	●	●
business access	⊕	●	●
neighborhood access	⊕	●	●
Costs			
<i>(How well does the alternative minimize:)</i>			
level of right-of-way costs	●	⊕	⊕
utility impacts	●	●	●
total construction costs	⊕	⊕	●
operating and maintenance costs	●	●	●
Union Pacific Railroad			
<i>(How well does the alternative provide opportunities for:)</i>			
ease of coordination, approval process, and reduced schedule delay	⊕	⊕	●
minimizing level of right-of-way acquisition	●	⊕	⊕