

Technical Memorandum #1

Data Collection and Existing Conditions Analysis

March 2009



AECOM

22nd Street Corridor Study

From I-10 to Kino Parkway

ACKNOWLEDGEMENTS

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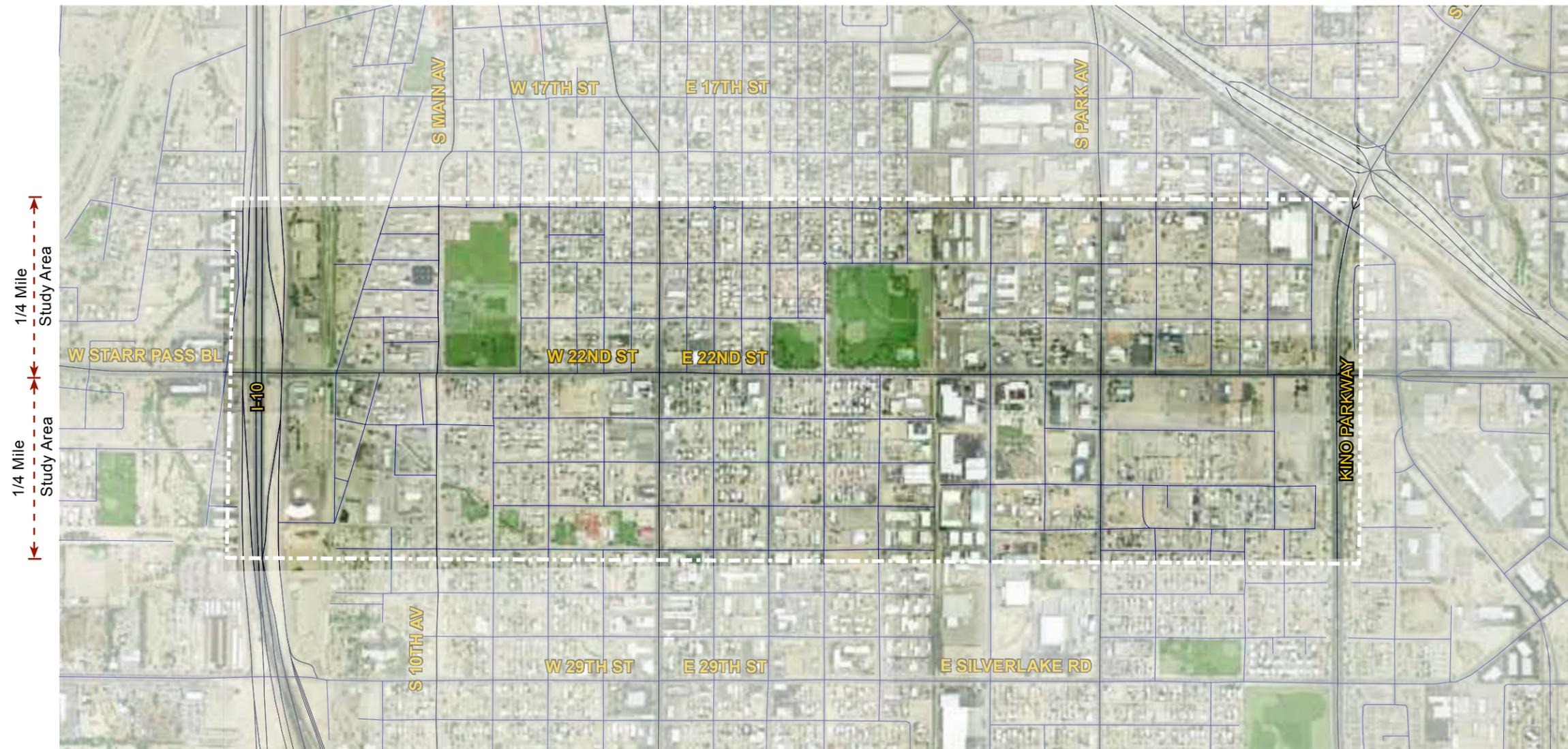
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*Not to Scale



Map 1: 22nd Street Corridor Study Area

1.0 Project Overview: 22nd Street Corridor, Interstate 10 To Tucson Boulevard/Barraza-Aviation Parkway

In August 2004, the Regional Transportation Authority (RTA) was created to develop a regional transportation plan that focused on addressing existing transportation needs within the region. Following formation, the RTA developed a \$2.1 billion, 20-year multi-modal plan with roadway improvements, transit improvements, safety improvements, and environmental and economic vitality improvements. The plan was formally approved by Pima County voters on May 16th, 2006 and currently consisting of 35 roadway improvement projects.

The 22nd Street Corridor, Interstate 10 to Tucson Boulevard/Barraza-Aviation Parkway, is listed as project number 19 on the RTA project list. The purpose of the project is to widen 22nd Street to six (6) lanes, with a raised landscaped median, a six (6) lane bridge over the Barraza-Aviation/Union Pacific Railroad (UPRR) tracks, a grade separation at the UPRR Nogales tracks, bicycle lanes, transit improvements, and American with Disabilities Act (ADA) accessible sidewalk improvements. Due to the overall size of the 22nd Street Corridor project, the project was broken down into 3 project sections:

- **22nd Street Corridor Project, Interstate 10 To Kino Parkway:**

The purpose of this project is to widen 22nd Street to six (6) lanes, with a raised landscaped median, grade separation at the UPRR Nogales tracks, drainage improvements, bicycle lanes, transit improvements, street lighting and sidewalks. The roadway design and land use concepts along this corridor will improve motorized and non-motorized safety and mobility, reduce vehicular congestion, and enhance existing neighborhoods adjacent to 22nd Street.

- **Kino Parkway And 22nd Street Intersection:**

The purpose of this project is to widen 22nd Street to six (6) lanes, with a raised landscaped median, a grade separated traffic interchange at Kino Parkway, bicycle lanes and sidewalks. Additional project elements include improving/maintaining access to nearby businesses and neighborhoods, drainage, street lighting, landscaping, and public artwork.

- **22nd Street, Kino Parkway To Tucson Boulevard**

The purpose of this project is to widen 22nd Street to six (6) lanes, with a raised landscaped median, a new 6 lane bridge structure over the Barraza-Aviation Parkway/UPRR tracks, opportunities for future access ramps to Barraza-Aviation Parkway, bicycle lanes, transit improvements, landscaping, and pedestrian movements.

Construction of the 22nd Street Corridor project will also be phased. The RTA has currently programmed construction funds to be available between Fiscal Year 2012 and 2016.

1.1 Project Description: 22nd Street Corridor Project, Interstate 10 To Kino Parkway

This Technical Memorandum addresses the 22nd Street Corridor Project, Interstate 10 to Kino Parkway. The planning and design of this project has been divided into 3 phases:

PHASE I - LISTENING PHASE

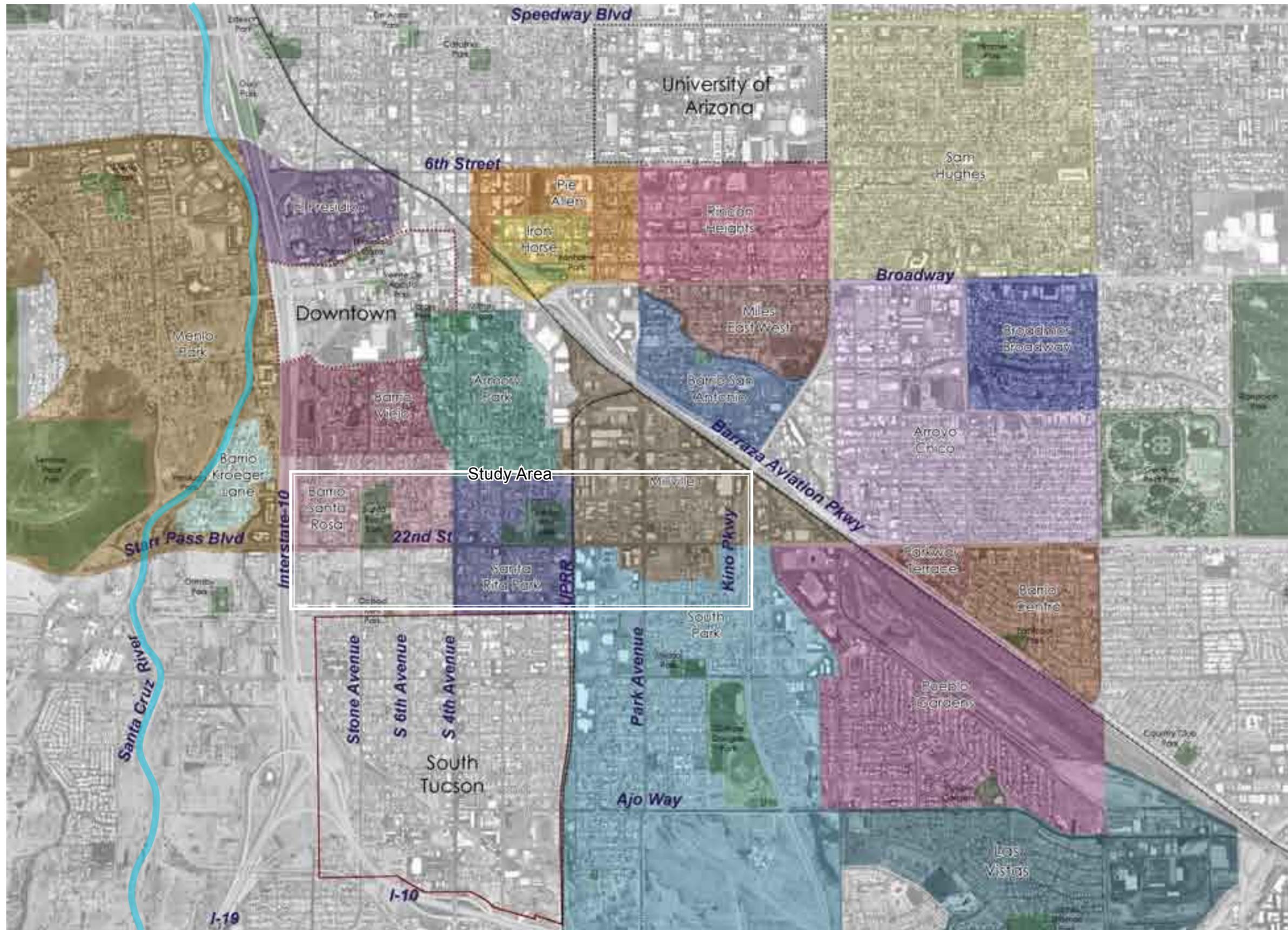
Phase I actively engaged neighborhood residents and other stakeholders in identifying community interests and needs that could be considered during the development of design alternatives. All comments were documented and will be taken into consideration prior to making recommendations for a final corridor design. Between September 2007 and March 2008, the City of Tucson (COT) Transportation Department held more than 15 meetings with neighborhood associations, the Primavera Foundation, Tucson Unified School District, Arizona Department of Transportation (ADOT), Sun Tran, RTA, Business Assistance Program, UPRR, and City of Tucson Parks and Recreation Department and Historic Preservation staff. Key issues emerging from these meetings include:

- Maintaining vibrant neighborhoods;
- Pedestrian safety;
- Allowing owners to decide for themselves whether or not to relocate;
- Children walking, school bus and parent drop-off routes for Borton School;
- Desire for improved pedestrian, bike and transit facilities;
- Impact of the overpass/underpass on visual quality and on properties adjacent to the railroad;
- Drainage;
- Quality of life of the corridor.

A detailed Phase I summary is available as a separate document.



The 22nd Street Corridor is surrounded by scenic views of the mountains. This view is looking west towards Sentinel Peak.



Map 1a: Regional Context

PHASE II - PLANNING PHASE

Phase II of the 22nd Street corridor study will result in a recommendation for a new, sustainable and accessible roadway and streetscape design and land use concepts that meets the expectations of the RTA Plan. The study area includes the area ¼ mile north and ¼ mile south of 22nd Street, between Interstate 10 and Kino Parkway (Map 1). To accomplish this study, a Citizen's Oversight Committee (COC) and a Technical Advisory Committee (TAC) will provide guidance on the development of alternatives and their refinement into a recommended design.

PHASE III - FINAL DESIGN PHASE

The final phase of this project will include developing final construction documents and specifications for the recommended alignment.

1.2 Purpose Of Technical Memorandum #1

Technical Memorandum #1 is the first of nine technical memorandums that will constitute the 22nd Street Corridor Study. This Technical Memorandum establishes the base planning conditions along the corridor and summarizes public engagement and other activities conducted during Phase I (Listening Phase) of this project. The remaining Technical Memorandums are as follows:

- Technical Memorandum #2 - Traffic Analysis
- Technical Memorandum #3 - Drainage Analysis
- Technical Memorandum #4 - Land Use Analysis
- Technical Memorandum #5 - Opportunities and Constraints Maps
- Technical Memorandum #6 - Preliminary Alternatives and Evaluation Criteria
- Technical Memorandum #7 - Santa Rita Park Conceptual Master Plan
- Technical Memorandum #8 - Preliminary 15% Design Plans
- Technical Memorandum #9 - Public Art Plan Summary
- Technical Memorandum #10 - Union Pacific Railroad Crossing Alternatives

1.3 Regional And Local Context

This section provides an overview of the Central Tucson Region and the local area immediately surrounding the 22nd Street Corridor. These areas provide a context for future analysis and alternative development. Similar to the 22nd Street Corridor, the region within which 22nd Street is located is economically and culturally diverse. The local area immediately surrounding the corridor includes downtown Tucson and the City of South Tucson. Downtown Tucson is generally defined as the area north of 12th Street, east of

Interstate 10, and southwest of Toole Avenue and the Union Pacific railroad tracks. See Map 1a.

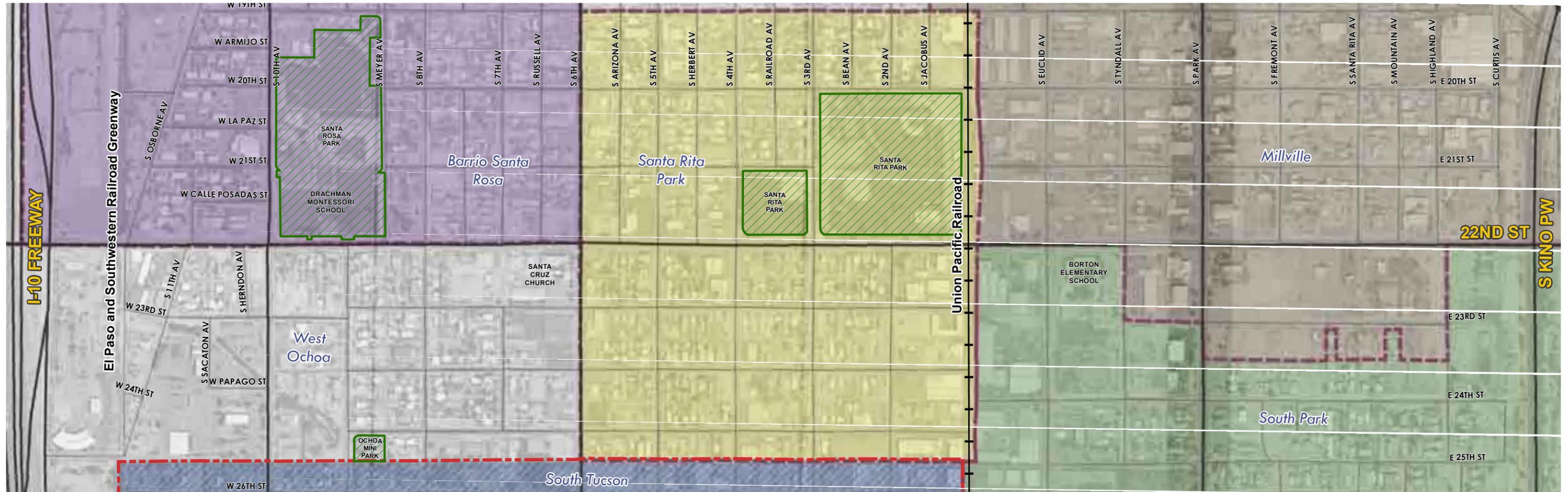
Transportation infrastructure that provides international connectivity within the region includes Interstates 10 and 19. 22nd Street connects to Interstate 10 approximately one mile north of the Interstate 19 exit. Interstate 19 is a key route to the port of entry at Nogales, Mexico. Nationally, Interstate 10 connects Jacksonville, Florida and Los Angeles, California. At a statewide level, Interstate 10 is the primary route between the Phoenix and Tucson metropolitan areas.

22nd Street is one of Tucson's most important transportation corridors. 22nd Street, together with Barraza Aviation and Kino Parkways collectively accommodate over 100,000 vehicles a day. The UPRR tracks, which cross 22nd Street between South 2nd and Euclid Avenues, links to Nogales, Mexico. The Tucson International Airport is approximately five miles south of the corridor. Five miles southeast of the corridor is another prominent site occupied by the Davis-Monthan Air Force Base. Sentinel Peak, located approximately 0.75 miles west of Interstate 10, is visible from the west portion of the corridor. The Santa Catalina Mountains, part of the Coronado National Forest and visible from the corridor, are located approximately nine miles to the northeast.

The 22nd Street corridor lies just north of the City of South Tucson. South Tucson's incorporation was started by a group of landowners in 1936 in an attempt to avoid annexation by Tucson. South Tucson was finally incorporated in 1940. The City of Tucson now surrounds South Tucson.

Mirasol Park (5 blocks south of 22nd Street), Military Park (9 blocks north of 22nd Street), San Augustine Plaza Park (10 blocks north of 22nd Street), Gene C. Reid Park (east of Kino Parkway) and Sentinel Peak Park (west of Interstate 10) are all within the immediate vicinity of the corridor. They provide recreational and scenic amenities for the area and offer opportunities to create bike route connectivity and linkages between the community neighborhoods.

The Barrio Historico (also known as Barrio Viejo) and Armory Park Neighborhood are recognized districts within one to three city blocks north of 22nd Street. These important historic areas provide context for the potentially historically significant neighborhoods within the 22nd Street Study Area. Barrio Historico is typified by Sonoran adobe row-houses and streetscapes. Historically it was Tucson's earliest Mexican-American neighborhood, and was built mainly between 1870 -1920. Armory Park, to the east, was built from the 1890s through the 1920's to serve employees of the Southern Pacific Railroad. This was a predominately Anglo neighborhood, built in a variety of styles including Territorial, Victorian, Queen Anne, and Bungalow.



LEGEND

- | | | | |
|--|-------------------------|--|----------------------|
| | Major Streets | | Neighborhoods |
| | Minor Streets | | Barrio Santa Rosa |
| | Neighborhood Boundaries | | Millville |
| | Parks | | Santa Rita Park |
| | South Tucson | | South Park |



Map 2: Neighborhoods

1.4 Neighborhoods

22nd Street Corridor Study area includes Barrio Santa Rosa, South Park, Santa Rita Park, West Ochoa and Millville neighborhoods. The neighborhoods are located within the Central Core Growth Area as described in the City of Tucson General Plan. While these neighborhoods are included in other, adopted, City plans, no specific or neighborhood plans exist for these areas¹. Map 2 shows the neighborhoods surrounding 22nd Street Corridor Study area.

BARRIO SANTA ROSA

Bounded by 6th Avenue, Interstate 10, 22nd Street and East 17th Street, Barrio Santa Rosa is one of the City's 15 designated historic neighborhoods. The Barrio is a predominantly residential area on the north side of the corridor and includes a variety of historic, new and renovated homes ranging in size from 600 to 2,700 square feet. The neighborhood is attractive to many because it is proximate to downtown, key transportation corridors and employment venues. Barrio Santa Rosa is served by Santa Rosa Park. Santa Rosa Park abuts 22nd Street and includes the Drachman Montessori Magnet School. 6th Avenue commercial district runs on the eastern edge of Barrio Santa Rosa and crosses 22nd Street. This commercial corridor includes pedestrian and transit amenities as a result of the 6th Street Beautification Project, undertaken by the Cities of Tucson and South Tucson.

¹ A specific or neighborhood plan is a document, generally adopted by the City, that contains goals, policies regarding the desired future physical and social environment of a neighborhood and the specific actions that will be taken to achieve them.



Santa Rita Park Neighborhood, south of 22nd Street



Millville Neighborhood, predominantly light industrial land use

SANTA RITA PARK

Santa Rita Park is a primarily residential neighborhood on both sides of 22nd Street. It is bounded by East 16th Street to the north, East 25th Street to the south, S. 6th Avenue to the west and the UPRR tracks on the east. The neighborhood includes Santa Rita Park. The park includes picnic areas, 3 ball fields, and a new skate park. Santa Rita Park serves the Santa Rita and nearby neighborhoods, and is important to the identity of the Santa Rita Park neighborhood.

SOUTH PARK

The South Park Neighborhood is bounded by East 29th Street, South Kino Parkway, the UPRR tracks and portions of 22nd Street not included in the Millville neighborhood. This historically important neighborhood includes a mix of residential, commercial and civic uses. It includes the Elizabeth Borton school, a valued community institution located directly on 22nd Street, and the historic South Park Avenue business district.

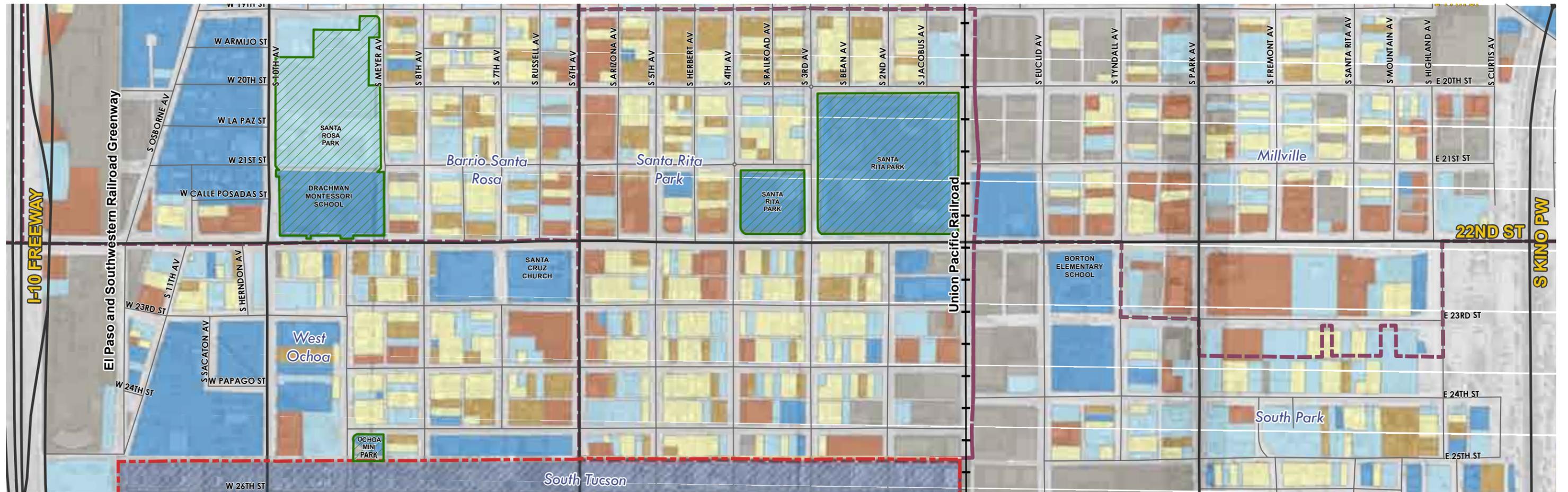
Unincorporated at the time of racial segregation, the South Park neighborhood was one of only two locations where African Americans were permitted to buy property for homes. The struggles of these early residents helped foster a strong sense of community as residents pulled together to overcome adversity. By the 1960s, South Park was a well-knit, thriving community, anchored by a number of African-American owned businesses along South Park Avenue. During the next several decades, however, South Park fell victim to problems of urban blight. Today, the neighborhood is reviving and several important community revitalization projects have been completed along South Park Avenue.

MILLVILLE

The Millville neighborhood is a primarily commercial and industrial area bounded by Aviation Parkway on the north, the UPRR tracks on the west, 22nd Street and 23rd Street (between South Tyndall to South Highland Avenue) on the south. Occasional residences and a few new infill residential areas are interspersed throughout the area. The Millville neighborhood is served by the active railroad tracks and includes a rail spur between East 17th and East 18th Streets.

WEST OCHOA

The West Ochoa neighborhood is bounded by the south side of West 22nd Street to the South Tucson border and the east side of South 6th Avenue to the east side of the Interstate 10. This neighborhood is recognized by the City, but does not have a formal neighborhood association. The historic Santa Cruz Church and the Santa Cruz Catholic School are located in the West Ochoa neighborhood.



LEGEND

- Major Streets
 - Minor Streets
 - - - Neighborhood Boundaries
 - ▨ Parks
 - ▨ South Tucson
- | Land Use | |
|-----------------|--------------|
| □ Single Family | □ Industrial |
| □ Multi Family | □ Public |
| □ Mobile Home | □ Vacant |
| □ Commercial | |



Map 3: Land Use

March 2009

1.5 Land Use And Zoning

Land use along 22nd Street between Interstate 10 and Kino Boulevard includes a diversity of public, residential, commercial and industrial uses. These uses are echoed within the Study Area surrounding 22nd Street. A detailed land use discussion will be included in Technical Memorandum #4.

Map 3 shows the existing land uses. The land uses fronting the 22nd Street corridor, as well as within the Study Area are diverse and include commercial, residential, open space and transportation uses.

PUBLIC LAND USES

22nd street frontage is dominated by public land uses. Over 1/3 of the 22nd Street frontage is in public use. The Santa Rita and Santa Rosa Park occupy 15 percent of the total corridor street frontage. The Barrio Santa Cruz Church and Borton Elementary School occupy 13 percent of the frontage along 22nd Street. Arizona Department of Transportation (ADOT) administrative and Head Start offices account for another ten percent of all uses. Within the ½ mile wide Study Area, 22 percent of the total acreage is developed with public land uses (87 total acres).

VACANT LAND

Vacant land comprises more than 21 percent of the total acres within the Study Area. The majority of vacant parcels within the Study Area are large parcels located on the east of South Park Neighborhood, on the east end of the corridor. The balance of vacant land consists of scattered vacant residential and commercial lots. Along 22nd Street frontage, vacant land is visually predominant at the eastern end.



Historic residence fronting 22nd Street.



Public land uses, such as the ADOT administrative offices, predominate the 22nd Street frontage.

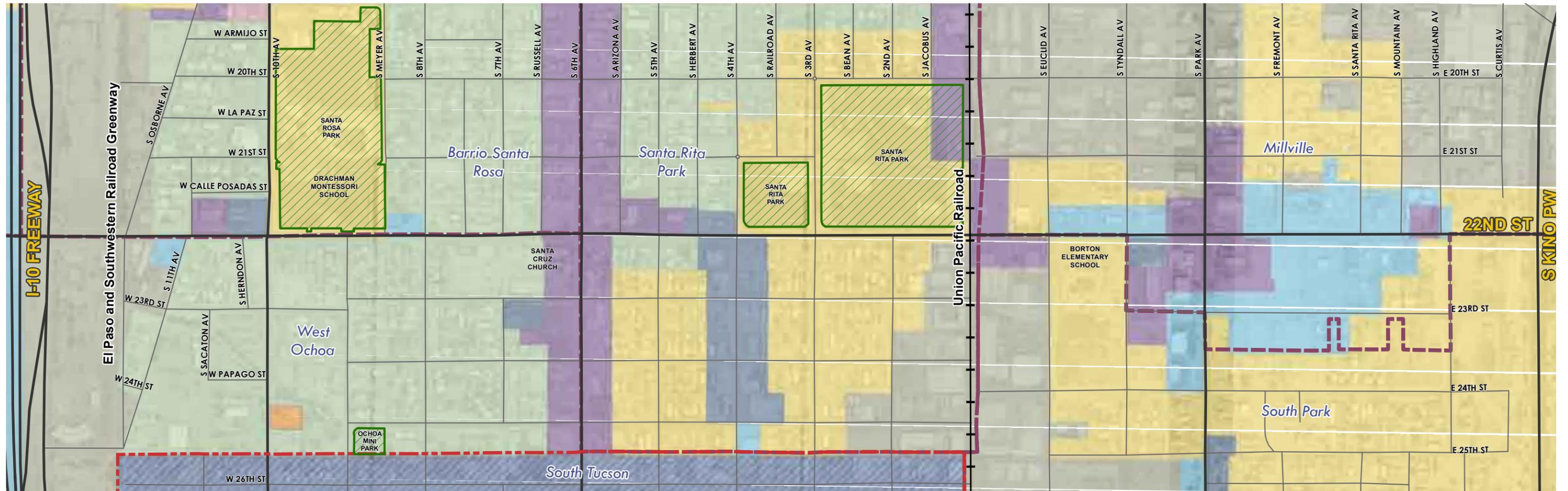
Nineteen percent of the total acreage along 22nd Street (22 industrial, commercial and single family lots) is vacant.

INDUSTRIAL

The second most predominant land use along the 22nd Street frontage is industrial (21percent). This land use mostly consists of large parcels with ample parking and on-site storage areas. Within the Study Area, industrial uses comprise 18 percent of the total land use, and are present on 70 parcels.

RESIDENTIAL

Residential development fronting 22nd Street corridor comprises 8 percent of the corridor land use. Single family development comprises 19 percent and multifamily development comprises 7 percent of the developed acres in the Study Area. While this land use does not comprise the majority of acreage, it is significant because it generally forms large blocks of a consistent land use type. There are 22 single-family and ten multi-family developed residential lots along the corridor. The majority of the residential land uses, with the exception of two homes at the east end of the corridor are west of the Union Pacific Railroad tracks. Within the study area, single family land uses comprise 19 percent and multi-family land uses comprise 7 percent of the total acreage. These single family lots are generally served by alleys and parking is not available on 22nd Street in front of the houses. Many residents use the alley as their primary means of vehicular access.



LEGEND

- Major Streets
- Minor Streets
- - - Neighborhood Boundaries
- ▨ Parks
- ▨ South Tucson

Zoning

- ▨ C-1 **Commercial Zone**- This zone provides for low-intensity, commercial and other uses that are compatible with adjacent residential uses. Residential and other related uses are permitted.
- ▨ C-2 **Commercial Zone**- This zone provides for general commercial uses that serve the community and region. Residential and other related uses are also permitted.
- ▨ C-3 **Commercial Zone**- This zone provides for mid-rise development of general commercial uses that serve the community and region, located downtown or in other major activity center areas. Residential and other related uses are also permitted
- ▨ I-1 **Light Industrial Zone**- This zone provides for industrial uses, that do not have offensive characteristics, in addition to land uses allowed in more restrictive nonresidential zones.

- ▨ O-3 **Office Zone**- This zone provides for mid-rise office development and other land uses which provide reasonable compatibility with adjoining residential uses.
- ▨ R-2 **Residence Zone**- 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
- ▨ R-3 **Residence Zone**- This zone provides for high density, residential development and compatible uses.
- ▨ P-1 **Park Industrial Zone**- This zone provides for corporate business centers and for wholesaling and manufacturing activities that can be carried on in an unobtrusive, controlled manner.

Map 4: Zoning

BLOCK PATTERNS AND STREET ACCESS

Within the gridiron plan of streets and avenues, block patterns are inconsistent along the corridor. Some blocks are divided with alleys that run north-south (north side of 22nd St between Euclid and Santa Rita Avenue), with lots fronting on side streets that run perpendicular to 22nd Street. On the south side of 22nd Street and west of Highland Avenue, there are blocks with lots that are accessible from 22nd Street only. The western end of the corridor has large, commercially zoned acreage with access from the north, west and south. Also located in the western portion of the corridor on south side of 22nd Street, are residential blocks with alleys that run east-west so that houses front on 22nd Street.

Zoning

Zoning provides an indicator of how land in the corridor could continue to be developed. Map 4 shows existing zoning classifications. Residential zoning (R-2 and R-3) accounts for approximately 60 percent of the zoning for parcels within the 22nd Street Study Area and for the parcels fronting the 22nd Street corridor. The R-2 and R-3 land zones allow permit from 15 to 36 dwelling units per acre. In the R-2 zone, single family lots must be larger than 5,000 square feet. The R-3 zone does not include a minimum lot size. Commercial zones C-1, C-2 and C-3 are the second largest category of zones along the corridor and within the Study Area. These zones provide for a wide range of neighborhood, community and regional commercial development. Within the commercial zoning category, intense commercial zoning (C-3) predominates. The C-3 zoning category provides for General and Intensive Commercial Development consisting of retail commercial with wholesale; nightclubs, bars, amusement enterprises, full range of automotive activities; sales, repair, leasing, and limited manufacturing. This zoning also permits residential uses. Industrial zoning (I-1) is the third largest category of zoning within in the Study Area and along the 22nd Street corridor. Technical Memorandum #4 will include an economic analysis and a discussion of land use opportunities along 22nd Street. A land use plan will be completed as part of the 22nd Street Corridor Study and available as a separate document.



Alley running east-west, opportunity for connectivity.



Tool and supply store.



Industrial land uses, such as this stone yard are located along the 22nd Street Corridor.



Commercial uses vary from community uses, like this bank to regional uses, such as a tool and supply store (top).

1.6 Historic Structures, Sites, Districts and Neighborhoods¹

Historic structures, sites, districts and neighborhoods are located throughout the 22nd Street Study Area. This section describes those features with recognized or potentially historic significance that are located along 22nd Street and within the Study Area. A structure or site that is recognized as historically significant is listed on the National Register of Historic Places². A potentially significant structure is one that is eligible to be listed on the National Register of Historic Places or one where eligibility for listing is presumed, but has not been documented.

Development History Of The 22nd Street Corridor

22nd Street is one of Tucson's earliest arterial streets, and formed the southern boundary of the City in the late nineteenth and early twentieth centuries. Blocks along the corridor were platted as early as 1888 (although buildings were not built on these lots until several years later). Santa Rita Park, a historic open space located at 22nd Street and 4th Avenue was originally called "South Park." The original design for the park dates back to 1904.

Several community institutions, with historic significance, exist within the Study Area. The UPRR line dates from the turn of the twentieth century, when UPRR extended a track to the border at Ambos Nogales. The first school built on 22nd Street was Borton Elementary in 1927. The new Drachman School is of recent construction (1995) replacing an earlier historic school in Barrio Viejo that was partially demolished and replaced with elderly housing. The first and only church directly on the corridor is Santa Cruz Catholic Parish which was built in 1918. The church site currently includes a private school for kindergarten through 5th grade.

Recognized Historic Structures

SANTA CRUZ CATHOLIC CHURCH

The Santa Cruz Church and parish hall is the only recognized historic structure along the 22nd Street Corridor between Kino Parkway and Interstate 10. The Church was completed in 1918. It is located at the southwest corner of 22nd Street and 6th Avenue. The property was listed on the National Register of Historic Places in 1995.

1. Archival research used in this section is located in Appendix A
2. An official list of cultural resources worthy of preservation; part of a federal program designed to protect the nation's historic, architectural, and archaeological assets (from http://www.urbanplan.org/UP_Glossary/UP_Glossary.html dated 08.11.17)

The church was designed by Henri Granjon, the Bishop of Tucson, and built in 1916-18 by Manuel Flores, the *maestro de obras* (master mason), who was also the builder of St. Augustine's Cathedral on north Stone Avenue. The style is Spanish Colonial Revival, and the design was based upon sketchbooks kept by the Bishop from his travels across Spain, Morocco, and Mexico. It is typified by simple rectangular volumes, composed of 30-foot-high plastered adobe walls with raised pilasters at regular 20 foot intervals and decorative finials at the parapet. An elaborate façade accentuates the entryway, which faces east towards South 6th Avenue. The single bell tower, 75 feet high, serves as a beacon for the church and is the most prominent landmark in all of the south Tucson area. Santa Cruz Church and Parish Hall are the largest un-stabilized mud adobe structures in southern Arizona, and are of the highest priority for preservation.



View of Santa Cruz Church at the corner of South 6th Avenue and 22nd Street photo: M. Rusk, 12.20.07

Potential Historic Structures

In order to be eligible for historic recognition and listing on the National Register of Historic Places a property must be at least 50 years old and have significance and integrity, according to the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties³.

Significance defines a property's historic importance. Integrity describes the ability of a property to convey its significance - that is, a building must be physically intact enough, with sufficient original fabric, to adequately represent its historic character. A significant property that has been heavily altered or damaged may not be eligible for listing on the National Register of Historic Places.

A building or site may be found significant if it meets one of the following four criteria:

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria A through C are likely factors in determining historic structures on 22nd Street. Criterion D may become relevant with regards to archaeological observation associated with for excavations necessary to an overpass or tunnel associated with grade-separating the Union Pacific Railroad from 22nd Street.

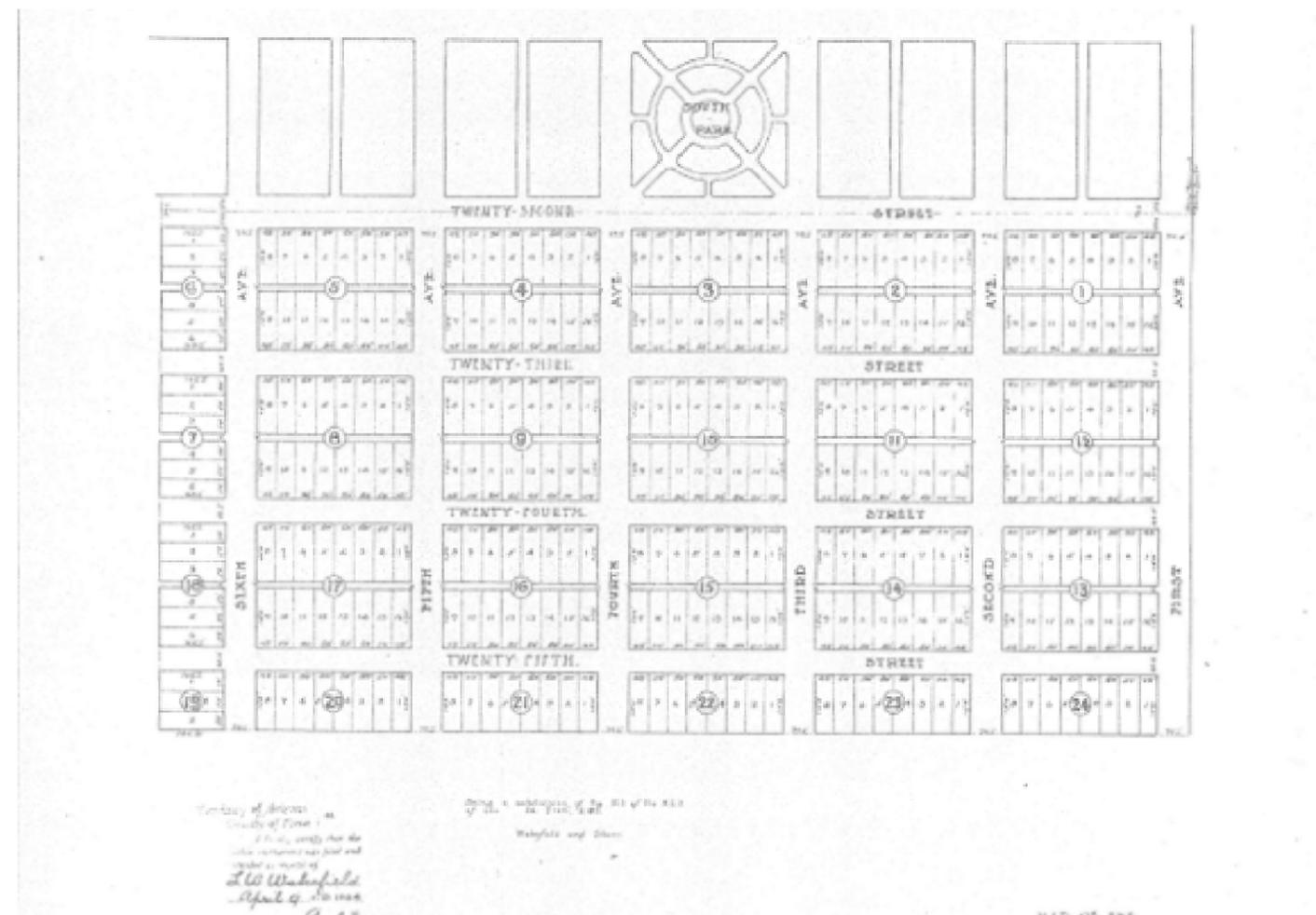
Along 22nd Street, the Santa Rita Park and Elizabeth Borton Elementary School are considered potentially eligible historic structures or sites. In addition to these potentially historic structures, there are other structures along the corridor that, while they do not meet the 50 year age requirement, add to the character of the neighborhoods along the corridor.

³ [http://www.nps.gov/history/hps/tps/standguide/preserve/preserve_standards.htm]

SANTA RITA PARK (HISTORIC NAME: SOUTH PARK)

This important open space was designed in 1904 in a Beaux-arts classical style with diagonal pathways with intersecting concentric circular paths. This formal design was never carried out, and today the park contains baseball fields and a community pool. A skateboarding park is planned for the western extension of the park, with public funding from the Tucson Parks & Recreation Department. The park is considered significant under criteria A and B. Because the park is a potentially historic site, renovations to the park must take into account the originally intended geometric design. Individual structures within the park also have historic significance. A brick shower building structure at the neighborhood pool was built in 1930⁴.

4. ref: Public Buildings: Architecture under the Public Works Administration 1933-39, Da Capo, 1986



South Park Addition : Original Plat, 1904



Historic open space at 22nd St. and 4th Ave. (NE corner), originally called 'South Park' and laid out in 1904 Beaux-arts classical style

ELIZABETH BORTON ELEMENTARY SCHOOL

The Borton School was originally built in 1927 in the Spanish Colonial Style. Located at 22nd Street and Euclid Ave southeast corner (700 East 22nd Street), the earliest section of this school was designed in 1927 by Annie Rockefeller, chief designer in the office of H.O. Jaastad, an architect who also served seven terms as Tucson's mayor in the 1920's and 30's. Mayoral terms were two years in that era. The school building was subsequently expanded in 1949 by another significant firm, Starkweather & Morse. Meritt Howard Starkweather was the architect of the Arizona Inn. The school was named after Elizabeth Borton, a beloved teacher and principal who served the school district for 35 years, and became Tucson's Unified School District (TUSD) first female superintendent. She retired in 1916 and was honored by the naming of the school during her lifetime (a TUSD tradition at the time).

INDY MUFFLER SHOP

The Indy Muffler Shop at 850 East 22nd Street (south side) is a privately owned commercial building along the corridor that has distinct character. The theme of automotive related land uses - such as repair garages, used car dealerships and auto supply houses - expresses the automobile culture of Tucson and the development that it accommodated over the 20th Century.

MISCELLANEOUS RESIDENTIAL STRUCTURES

Any house along the south side of 22nd Street more than 50 years old is potentially historic. Many have sufficient historic significance and integrity. Examples of potentially historic residences are entire blocks on the south side of the 22nd Street from 4th Avenue to 2nd Avenue across from Santa Rita Park. A preponderance of these houses were constructed from 1910 to 1950 and are in good condition. Mediterranean Revival houses and Bungalows make up the majority of these eligible structures.

DISTINCTIVE STRUCTURES

The Industrial Tool and Supply company at 830 East 22nd Street (International Style) and the branch bank at 145 East 22nd Street (Provincial/Regional Modern) are mid-20th Century commercial buildings that are not yet 50 years of age, but are distinctive and examples of their type of construction.

Potential Historic Districts

There are two potential (i.e. National Register eligible) future historic districts directly along the corridor. These are Barrio Santa Rosa, located north of 22nd Street, between 6th Avenue on the east and Osborn Avenue on the west; and Santa Rita Park Neighborhood, located north and south of 22nd Street from Euclid Avenue on the east to 6th Avenue on the west. At the time of writing, the City of Tucson is seeking



Borton Elementary School, first school built (1927)

a consultant to write a National Register Historic District nomination for Barrio Santa Rosa. It appears likely that this neighborhood will be listed on the National Register of Historic Places. Within this future historic district, there are three houses along the corridor with enough significance and integrity to be contributing historic structures: (1) 417 West 22nd Street; (2) 1209 South 11th Avenue; and, (3) 1141 South 11th Avenue. Map 2 shows the location of neighborhoods described in this section.

At the time of writing a separate historic district nomination is not contemplated for the Santa Rita neighborhood. Preservationists in this area are exploring the possibility of expanding the existing Armory Park Historic District to include those historic structures within the Santa Rita neighborhood because the potentially historic homes in Santa Rita are of a similar character to those at the south end of Armory Park. Within this neighborhood, there are several historically eligible houses along the south side of 22nd Street.

Dates Of Construction Of Structures And Features Along Corridor

Dates of construction of individual buildings, where available, are listed in the State Historic Preservation Officer Historic Property inventory forms included in Appendix B. Research was performed with the Pima County Assessor’s Office and the Tucson Water Department (water tap cards to identify the date of first service to a property). Dates given are the best available data.

Styles And Periods Represented, And Their Significance

Architectural styles represented along the corridor are listed in Table 1. Among residences, Sonoran adobe structures have highest significance, being original to the Tucson area. The architectural styles represent historic periods of City growth from the late 19th century (planning and platting), the early 20th century (individual houses, Borton School and Santa Cruz Church), and through the mid 20th century (commercial, industrial and automotive structures).

Building Heights And Features

Typical of Tucson’s low-density horizontal development, most of structures along 22nd Street are single story. These exceptions are the Parent and Child Education Center (Head Start) just east of the UPRR at 602 East 22nd Street, built in 1955 and the 1990 office building at 1247 East 22nd Street. Neither of these structures are significant or distinctive.

The highest structure on the corridor is the bell tower of Santa Cruz at 22nd Street and South 6th Avenue, which reaches approximately 75 feet. The church itself, although only one story in height, excepting the choir loft, a partial second story at the east end of the nave is 30 feet high, and is the largest, most massive structure icon in the vicinity.



Wells Fargo, Provincial/Regional Modern Architecture



Indy Muffler Shop, a commercial building that is at least 50 years old with distinct character



HeadStart offices, mint green color adds to the range of colors along the corridor.



Borton Elementary School

Table 1: ARCHITECTURAL STYLES ALONG 22ND STREET

STYLE:	EXAMPLE (Address):	DATE:
Sonoran:	House, 1209 S. 11th Ave.	1918
	House, 417 W 22nd St.	1925
Spanish Colonial Revival:	Santa Cruz Church, 1220 S. 6th Ave	1918
	Borton School, 700 E. 22nd St.	1927
Bungalow:	House, 321 W. 22nd St.	1924
	House, 229 W. 22nd St.	1925
	House, 120 E. 22nd St.	1917
	House, 348 E. 22nd St.	1919
Mediterranean Revival:	House, 134 E. 22nd St	1940
	House, 140 E. 22nd St.	1938
	House, 402 E. 22nd St.	1934
	House, 410 E. 22nd St.	1926
	House, 448 E. 22nd St.	1928
Minimal Traditional:	House, 310 E. 22nd St.	1946
Ranch (brick, burnt adobe & cement block)	House, 440 E. 22nd St.	1959
	House, 436 E. 22nd St.	1971
	House, 410 E. 22nd St.	1926
Commercial Brick:	Bath House, Santa Rita Park	1930
	ADOT offices 621,633 & 635 E.22nd	1974
Industrial/Prefab Metal:	Warehouse, 650 E. 22nd St.	1990
	Diamond Shamrock @ Park Ave.	1996
Commercial Strip:	Office complex, 832 E 22nd St. (includes office of Rep. Grijalva)	1988
International Style:	Welding Supply, 830 E. 22nd St.	1964
	Indy Muffler, 850 E. 22nd St.	1955
Provincial/Regional Modern:	Bank, 145 E. 22nd	1970

The Borton School (700 East 22nd Street, built in 1927) is a tall single story, 20 to 24 feet in height, befitting the scale of a public building. Several of the commercial and automotive structures on 22nd Street range from 16 to 18 feet high.

Residential properties vary from minimal eight foot high houses (see 1347 East 22nd Street, built in 1949 of painted cinder block) to 12 to 15 foot heights at parapets and gable ends of Bungalows (348 East 22nd Street, constructed in 1919) and Mediterranean Revival style houses (410 East 22nd Street, dating from 1926). Overall, the scale of residential streets is modest and the degree of spatial enclosure low.

Material And Color Palettes

Materials range from the traditional stuccoed adobe walls of the older houses (as found at 1209 South 11th Avenue), to the metal siding of modular buildings at the numerous used-car dealerships along the corridor (for example, 1116 East 22nd Street). Also represented are painted concrete block (as in the 1949 house located at 1347 East 22nd Street), painted brick (at the Santa Rita Park pool bath house), exposed red brick (Arizona Department of Transportation offices, 621 East 22nd Street).



Newly renovated/painted houses along corridor showing a more vibrant color palette.



Mediterranean Revival and Bungalows make up the majority of the houses.

22nd Street is an eclectic corridor without a distinct color palette. Colors span the spectrum from white, beige, terra-cotta, mint green (at the HeadStart offices), primary yellow and red (at the gas station shelters of the 1970 construction Quik Mart, 1140 South 4th Avenue), to deep rose and blue found on painted stucco houses in the western portion of the Study Area. As with architectural styles, there are a wide variety of materials and colors used on buildings throughout the Study Area.

Lot Size And Shape

Lot sizes and shapes vary from 50 feet wide residential lots facing onto 22nd Street (south side between 8th and 10th Avenue) to larger commercial properties of several acres (former Watson Chevrolet site, Southeast corner of 22nd Street and Park Avenue). Other residential lots open onto side streets or avenues (for example, north side of 22nd Street from Meyer Avenue at the Drachman School to 6th Avenue).



Adjacent commercial properties also contribute to the wide spectrum of colors along the 22nd Street Corridor



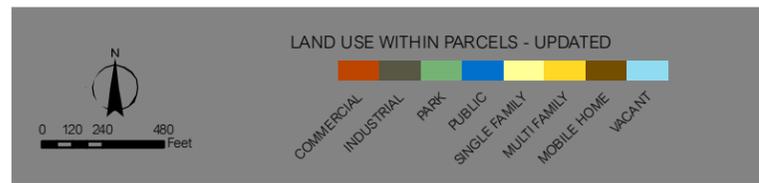
Brightly painted stucco houses found on the west side of 22nd Street Corridor

Historic Preservation Priorities

1. HIGHEST PRIORITY FOR PRESERVATION:
 - a. Santa Cruz Church complex
 - b. Borton Elementary School
 - c. Santa Rita Park (open space)

2. HIGH PRIORITY FOR PRESERVATION:
 - a. Houses along south side of 22nd Street (South Euclid Avenue to 4th Avenue)
 - b. Houses along south side of 22nd Street (from 4th Avenue to South Osborne Avenue)
 - c. Mid-20th Century architecture including automotive service buildings such as the Indy Muffler shop.

Special precautions must be taken to protect the Santa Cruz Church Complex and the Borton School from damage during construction due to vibrations caused by excavation, compaction or paving operations. These are un-reinforced brick and adobe structures. Precautions should include: (1) structural assessment and documentation of existing conditions prior to start of construction; (2) specifications for materials and procedures to reduce and limit vibrations that might cause cracking or failure; (3) monitoring conditions during construction, including visual inspections, crack monitors, seismographs and/or other measures as necessary to protect the historic buildings; and (4) provisions to make sure that construction drainage does not adversely affect the building.



Map 5: Overall Physical And Visual Assessment



1.7 Physical and Visual Environment

The physical environment of the corridor includes new and redeveloped residential, commercial and industrial areas. The incremental development cycle has resulted in a mix of land uses that are sometimes incompatible with the current configuration of 22nd Street. Street improvements that have been made to accommodate increases in traffic volumes have resulted in narrow sidewalks and setbacks, and provide limited space for the provision of amenities for bus stops, pedestrians and cyclists. Because the overall building height is low throughout the corridor and park land is a significant land use on the north side of the corridor, there are views of the Santa Catalinas and Sentinel Peak from many locations along 22nd Street. Map 5 shows an overview of the corridor and indicates enlarged plans of areas 1-6 on subsequent pages.

Land Use Incompatibility With Traffic Volumes

Increased traffic volumes have negatively impacted the residential uses abutting 22nd Street, in particular, the residences across from Santa Rita and Santa Rosa Parks (which only have access via 22nd Street) and sites such as Borton School, Santa Cruz Church and some commercial facilities that have very narrow setbacks. These impacts include difficulties using residential and other driveways, increased hazards to pedestrians crossing the roadway, and noise. In some areas, residents and businesses have mitigated for these impacts by using the alleys. Other areas, such as areas in South Park, south of 22nd Street and Millville north of 22nd Street, have no alley access.

Sidewalks And Setbacks

Sidewalks within the corridor vary from three to five feet wide and are generally less than four feet wide. Some areas, such as east of Santa Rosa Park, lack sidewalks entirely. Because the sidewalks

are narrow, there is no landscaping and sidewalks are often obstructed with utility poles or signs. The pedestrian environment, with the exception of the South Park Avenue intersection, does not include directional signs, neighborhood identification or interpretation.

Limited Transit Facilities And Amenities

With the exception of the South Park Avenue and the Santa Cruz Church bus stops, transit facilities generally include a sign and in rare cases, a poorly maintained, unshaded concrete bench on the sidewalk. Bus stops are not generally located near crossings for 22nd Street, making it difficult to access them from the opposite side of the street.

Incompatible Adjacent Land Uses And Vacant And Under-Used Lots

In several locations along the corridor, commercial and light industrial land uses are adjacent to residential development. Additionally, some land uses, such as used car lots, construction material sales and storage reduce the visual quality of the corridor and are incompatible with nearby neighborhood service and residential uses. Vacant properties are located throughout the corridor. These properties provide opportunities through openspace connections and development opportunities with other uses.

Visual Environment/Interpretation.

The lower scale and intensity of development of the corridor results in views that provide identity and context for the neighborhoods along it. These views include the bell tower of the Santa Cruz Church, A Mountain and the Santa Catalina Mountains. Open vistas are provided by the Santa Rita and Santa Rosa Parks. The South Park Avenue intersection includes art that identifies the South Park neighborhood and celebrates its history.



Santa Cruz Church, brick pavers line the intersection



Santa Rita Park



Public art on 22nd Street



View of 22nd Street corridor looking southeast



Map 5.1: Physical And Visual Assessment



- Bus Stop
- Photo/Note Key
- Major Drainage





1 Northwest corner of 22nd Street and Interstate 10, construction obstructing the view of Sentinel Peak



2 Looking east on north side of 22nd Street, grade change is noticeable from corner of 22nd Street and Interstate 10 frontage road



3 Interstate 10 frontage road - west end of the corridor is an opportunity for the start of improvements for the pedestrian, bicycle and transit access along the corridor



4 Favorable views such as that of Sentinel Peak should be preserved to the greatest extent possible



5 Looking northeast from 22nd Street (north side) at a major drainage ditch - this area is an opportunity for a Greenway Connection



6 Looking northeast from 22nd Street (south side) opportunity for Greenway Connection and creating more of a vegetated wash environment



7 Narrow sidewalks obstructed by utility poles dominate the eastern side of the corridor, creating a constraint in the widening of the street



8 Holiday Mart is one of many family-owned small businesses that caters to the local neighborhood



9 Warehouse on south side of 22nd Street looking west - this neighborhood is predominately residential with a few warehouses and light industrial uses. Land uses are incompatible



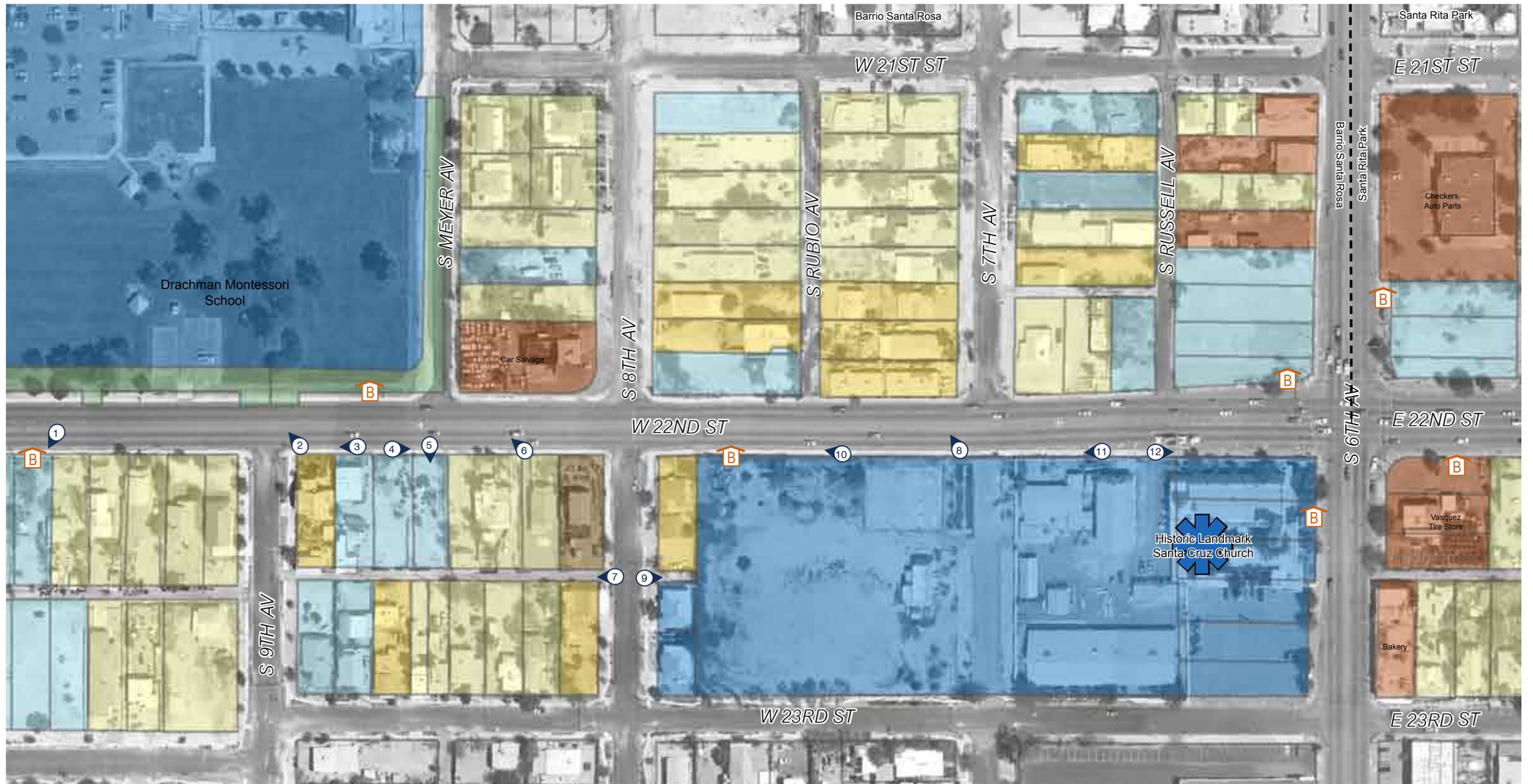
10 Vacant lot on northwest corner of 22nd Street and 11th Avenue presents redevelopment opportunities



11 Residential Vacant lot in Barrio Santa Rosa Neighborhood is an opportunity for infill development



12 Business types and land uses vary widely across the corridor, and in some cases are not compatible



Map 5.2: Physical And Visual Assessment



- BUS STOP
- PHOTO/ NOTE KEY





1
Vacant lot and narrow sidewalks on south side of 22nd Street between 9th and 10th Avenue



2
Southeast corner of Drachman Montessori Magnet School - a significant community institution where there are opportunities for pedestrian/bike crossings



3
Looking west towards Interstate 10 on 22nd Street, electric utilities share utility poles with other communication lines such as fiber optic cables



4
Newly renovated/ painted houses on south of 22nd Street represent an enhancement to the neighborhood



5
An empty lot on south side of 22nd Street is a potential opportunity for infill development



6
Looking towards southeast corner of Drachman Montessori School, one way street (South Meyer Avenue) - traffic has increased in this area and there is opportunity for creating traffic calming devices



7
Alley between 8th and 9th Avenue is an opportunity for connectivity of neighborhoods and access



8
Apartments on north side of 22nd Street have a minimal setback, a constraint in widening of 22nd Street



9
Constraint for connectivity and access



10
Looking west towards Interstate 10, viewsheds of the mountains and parks should be kept for enhanced visual quality



11
Narrow sidewalks contain utility poles and signs



12
Looking east on 22nd Street at Santa Cruz Church, this important historical landmark should be preserved and guarded from impacts of increased traffic and construction



Map 5.3: Physical And Visual Assessment



- BUS STOP
- PHOTO/NOTE KEY





Wells Fargo Bank, Provincial/Regional Modern Architecture - contributes to neighborhood character



Houses on south side of 22nd Street of historical significance present an opportunity for preservation and enhancement to neighborhood character



Alley between 4th and 5th Avenue is an opportunity for connectivity between neighborhoods and vehicular/pedestrian access



Market/Restaurant business on south side of 22nd Street (Las Cazuelitas de Tucson), currently utilizes existing Tucson right of way for parking



Looking northeast towards Santa Rita Park - opportunity to use some areas of the park for retention basins



Looking east between 3rd and 4th Avenue, residences are close to the street



Looking south on 3rd Avenue, example of street that could become a cul-de-sac



Looking north on 3rd Avenue, opportunity for cul-de-sac so traffic does not go into neighborhood



Houses on south side of 22nd Street are of great historical significance



Looking east from 2nd Avenue on south side of 22nd Street at beginning of ADOT property, unpaved sidewalks and large setbacks could allow a wider right of way



Looking northeast at Santa Rita Park, an overpass could possibly block the views



Looking north east at the Catalina Mountains, opportunity for a landscape buffer along east and west sides of the tracks



Map 5.4: Physical And Visual Assessment



BUS STOP
 PHOTO/ NOTE KEY





Looking east on north side of 22nd Street at Santa Rita Park, wider right of way could take some of the trees



Looking south at UPRR from 22nd Street there is a drainage ditch that could be restored into more of a greenway with a more vegetated environment



Opportunities for mitigation improvements for Santa Rita Park- strip of dirt along east side of park next to the railroad tracks could be reclaimed for more park



Head Start building, one of the tallest buildings along 22nd Street, the set back is big enough for widening of 22nd Street



Many of the sidewalks/setbacks on the east side of the UPRR are wide enough to allow widening of 22nd Street right of way



Car sales and related industries are dominant on 22nd Street, especially east of the UPRR



Approaching the oldest school on 22nd Street, Elizabeth Borton Primary School (built in 1927), a significant historical landmark is close to 22nd Street



Automobile related business, on northwest side of 22nd Street and Tyndall Avenue, that creates low visual quality



Utility poles are dominant on south side of 22nd, there is a lack of directional signage and identity in most areas of 22nd Street corridor



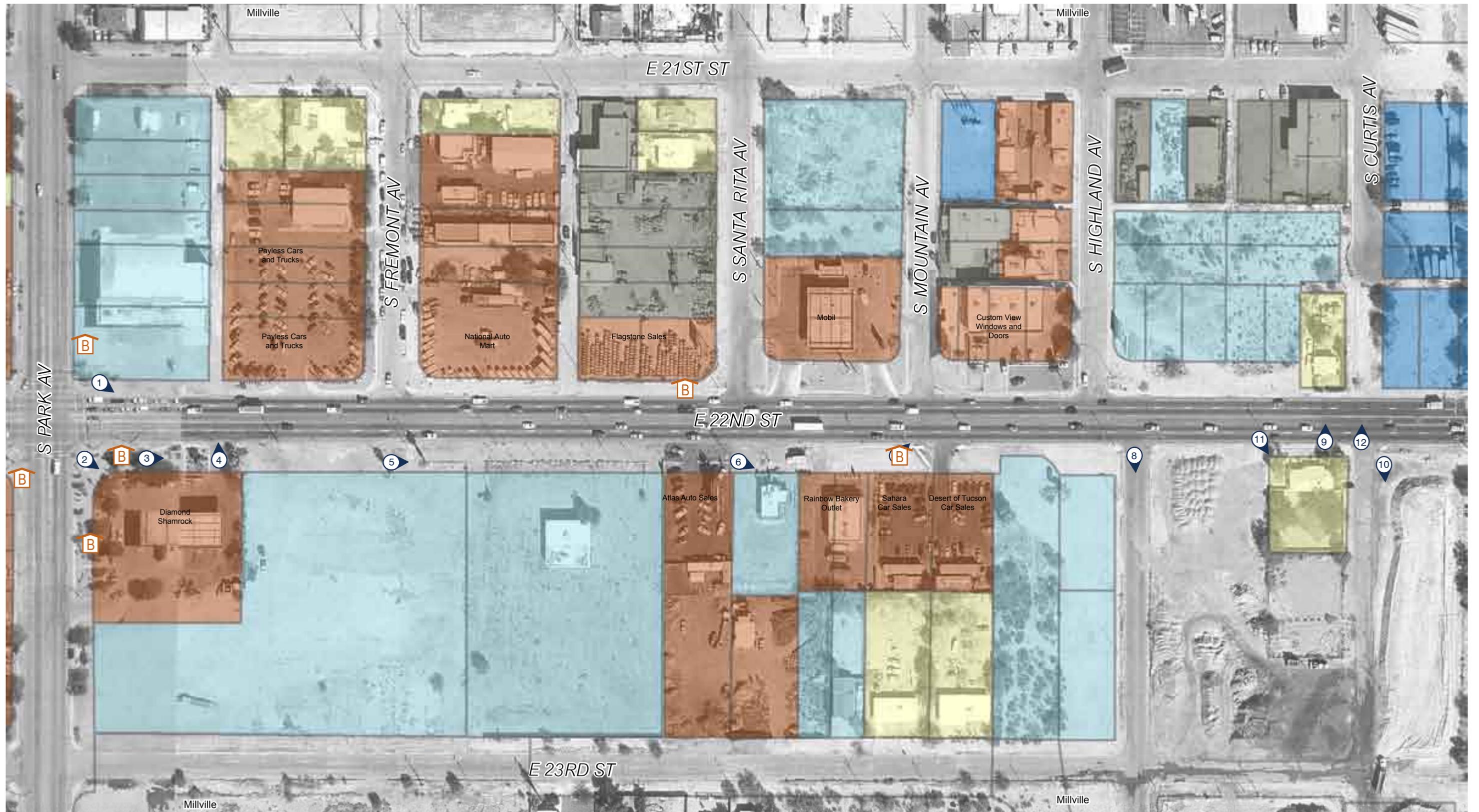
Restaurant, Maico, on northeast side on corner of 22nd St. and S. Tyndall enhances the neighborhood with its landscaped front



Looking north into Millville neighborhood, predominantly light industrial land use and not compatible with the adjacent residential areas



Looking south on Tyndall Avenue, there are major drainage issues and flooding occurs on Tyndall at Park Avenue and on intersection of 23rd and 22nd Street



Map 5.5: Physical & Visual Assessment



- BUS STOP
- PHOTO/ NOTE KEY





1 On corner of Park Avenue looking north east, public art at this intersection, could be carried out in other areas along 22nd Street to enhance the neighborhoods character



2 Public art on the southeast corner of 22nd Street and South Park Avenue at the corner of Diamond Shamrock



3 More bus stop shelters such as this one are needed along 22nd Street



4 Alley running north-south, on north side of 22nd St. between Park Avenue and Freemont Avenue is an opportunity for access. Vacant buildings present an opportunity for redevelopment



5 Wide set back due to vacant lots allow for widening of road and also development opportunities



6 Vacant business, opportunity for adaptive reuse and development opportunity



7 Looking northeast towards Plum Windows and Doors, located in Millville Neighborhood (predominantly light industrial neighborhood)



8 Vacant lot on south side of 22nd Street will be used for the interchange at Kino Parkway



9 One of the two houses on the east end of the 22nd Street corridor project limits, on northwest corner of 22nd Street and Curtis Avenue



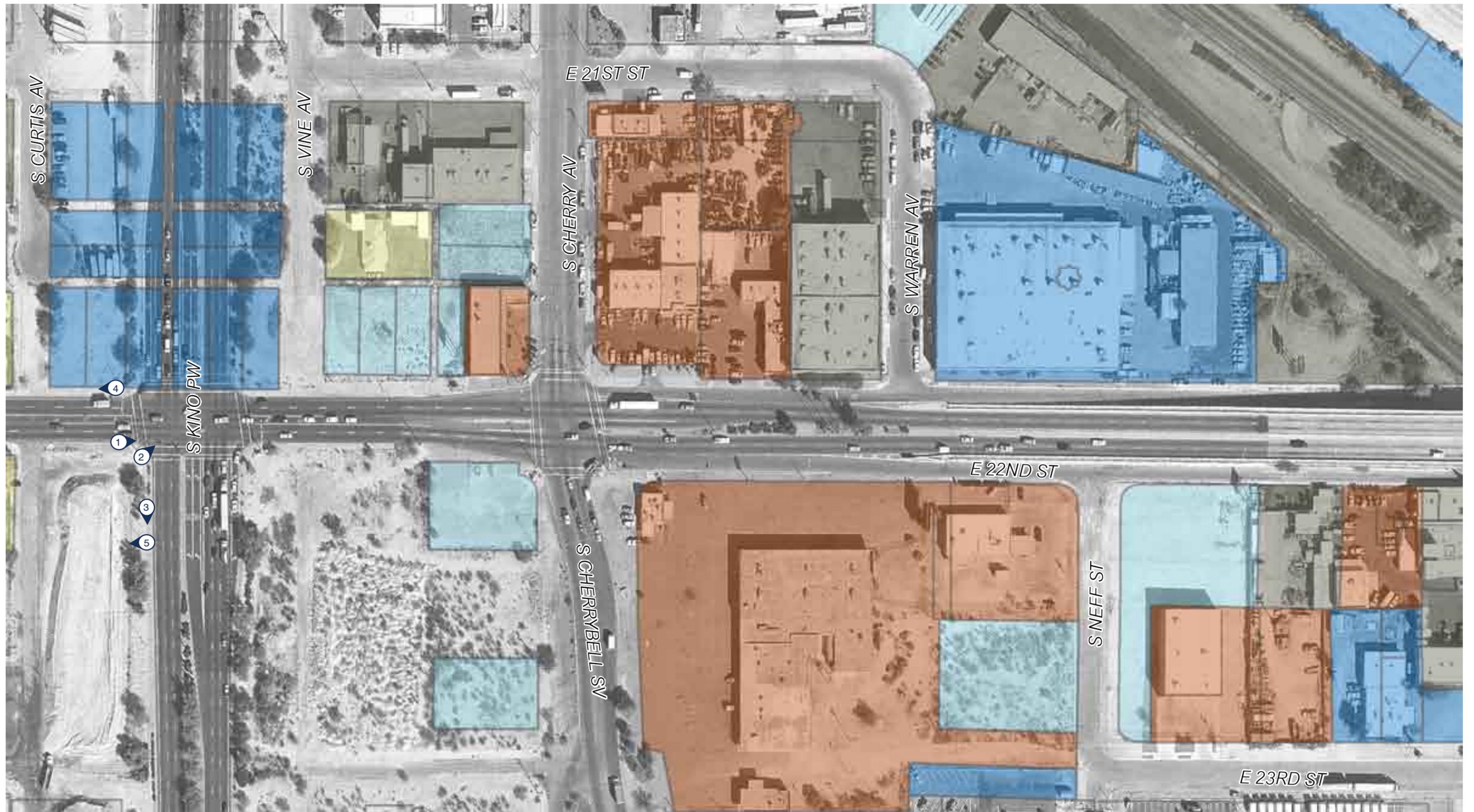
10 Most of this vacant land will be used for the Kino Parkway and 22nd Street interchange



11 House on the east end of the corridor on south side of 22nd Street. Southwest side of 22nd Street and South Curtis Avenue, owned by ADOT



12 Looking north across at a cul-de-sac (South Curtis Avenue) surrounded by vacant parcels and public land



Map 5.6: Physical And Visual Assessment



-  BUS STOP
-  PHOTO/ NOTE KEY



1
Intersection of Kino Parkway and 22nd Street, from southwest corner



2
Intersection of Kino Parkway and 22nd Street



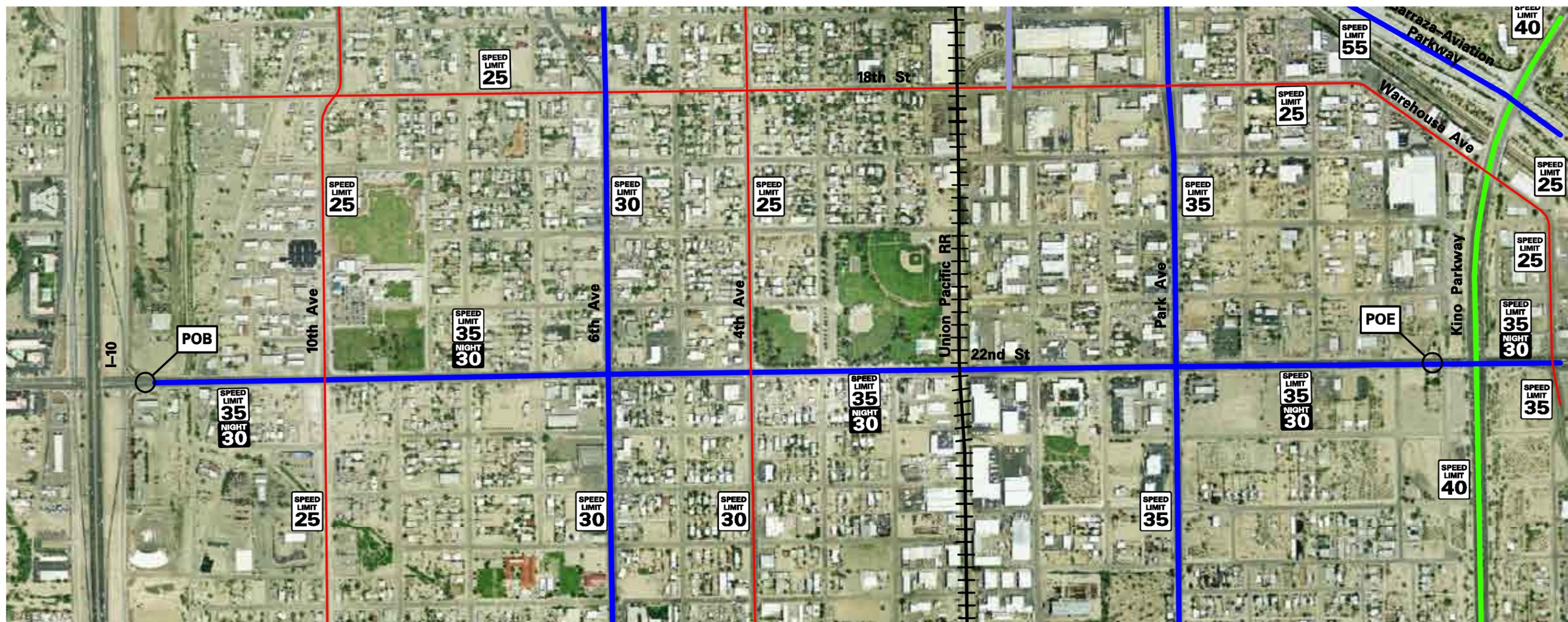
3
Looking south on Kino Parkway at the start of the bike route, potential opportunities for connecting this bike route to the Greenway through the 22nd Study area



4
Bike path on north side of 22nd Street looking west



5
Vacant lot to be used for Kino Parkway and 22nd Street interchange



LEGEND

- Collector
- Arterial
- Arterial and Gateway Route

* Not to Scale



Map 6: Roadway Classification And Speed Limits

1.8 Traffic/Circulation Analysis

Roadway Classification And Speed Limits

22nd Street between Interstate 10 and Kino Parkway is designated as an arterial street on the City of Tucson Major Streets and Routes Map by ordinance #9340. The study corridor is intersected by two arterial streets (6th Avenue and Park Avenue) and two collector streets (10th Avenue and 4th Avenue). 22nd Street, within the study limits, has a five-lane cross section consisting of two lanes of travel in each direction and a center left turn lane. This east-west arterial route has a daytime posted speed limit of 35 mph and a nighttime posted speed of 30 mph. Map 6 illustrates the roadway classification and speed limits along the study corridor and the major roadways intersecting 22nd Street.



22nd Street , designated arterial street on City of Tucson Major Streets and Routes Map



10th Avenue, looking south - collector street



6th Avenue, looking south - arterial street



10th Avenue, looking north - collector street



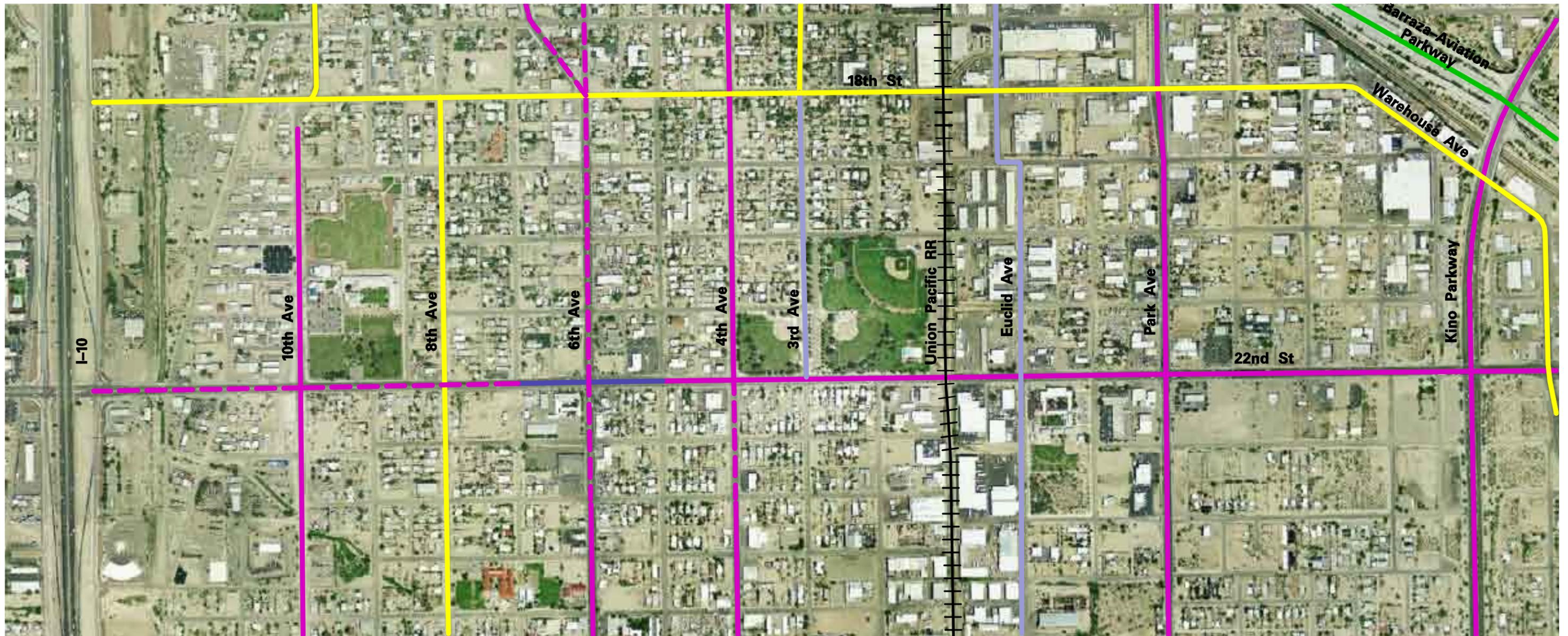
Park Avenue, looking south - arterial street



4th Avenue, looking north - collector street



4th Avenue, looking south - collector street



LEGEND

- Shared-Use Path
- Bike Route
- Bike Route with Striped Shoulder
- Residential Streets
- Major Streets
- - - Planned Improvements

* Not to Scale



Map 7: Bicycle Routes

Bicycle Routes

22nd Street is classified as a bicycle route, with striped shoulder, from 4th Avenue to Kino Parkway. West of 4th Avenue, the City of Tucson Bike Map indicates plans to improve 22nd Street. The arterial and collector roadways intersecting the study corridor are also bike routes with a striped shoulder. Map 7 shows the bicycle routes within the study limits.



Bike path on north side of 22nd St.



Bike route on Kino Ave.



Bike route on 8th Ave., looking south



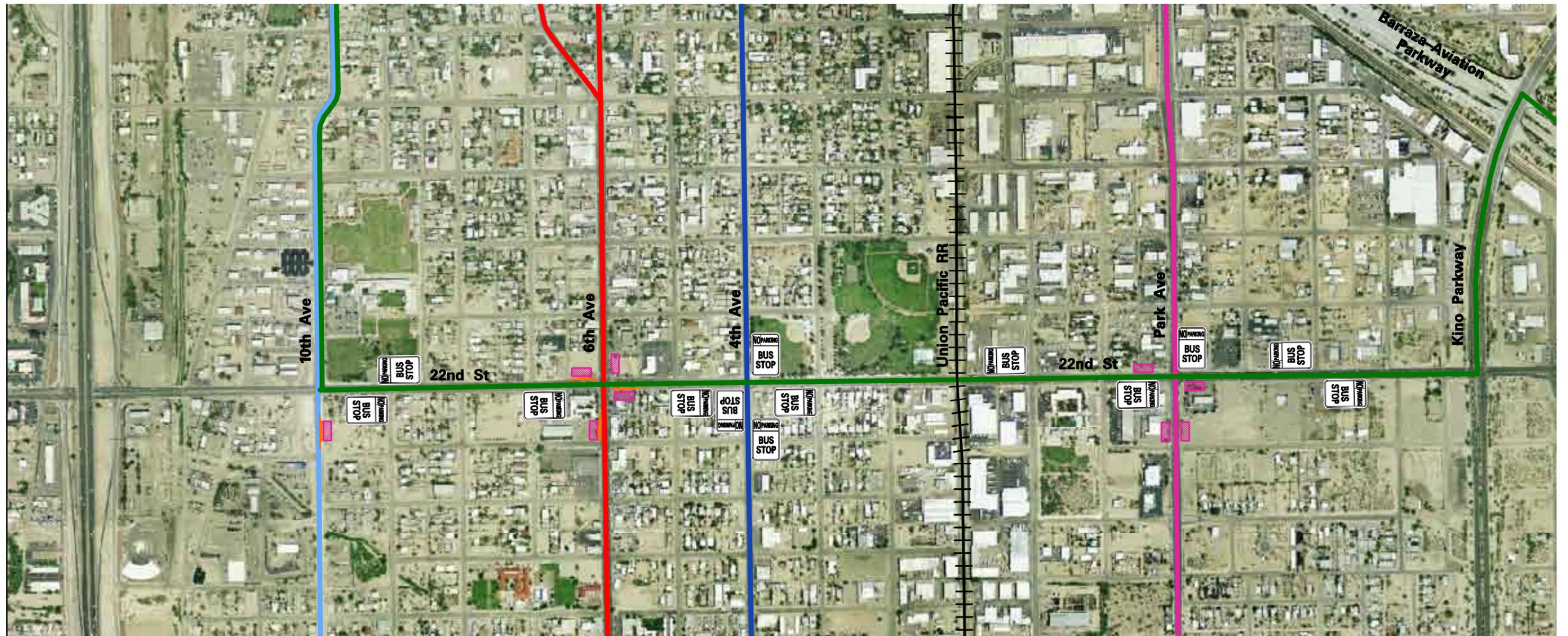
4ft. wide bike path on north side of 22nd St.



Bike path on 10th Ave. connects with 22nd St.



Bike path on 22nd St. (north side) between Kino Ave. and S. Highland Ave.



LEGEND

- ⑥ S. Park Ave/N. 1st Ave
- ⑦ 22nd St
- ⑧ Broadway/6th Ave
- ①⑥ 12th Ave/Oracle Rd
- ②③ Mission Rd

-  Sign
-  Structure
-  Bus Pull-Out

* Not to Scale



Map 8: Bus Routes And Stops

Bus Routes And Stops

Sun Tran Route 7 provides service on 22nd Street and four bus routes (Routes 6, 8, 16 and 23) service cross streets within the study area. Map 8 presents the Sun Tran bus routes and bus stops located within the study area.



Bus stop with shelter on south side of 22nd St. at Diamond Shamrock



Bus stop on north side of 22nd Street, east of Park Avenue



Bus stop with shelter on northeast corner of 22nd Street and 6th Avenue



Bus stop on south side of 22nd Street between 4th and 3rd Avenue



Bus stop with shelter on 10th Avenue (south of 22nd Street)



Bus stop on southeast corner of 22nd Street and Euclid Avenue



LEGEND

- Sidewalk
- ↔ Sidewalk Ramps
- Crosswalk

** Not to Scale*



Map 9: Sidewalks And Sidewalk Ramps

Sidewalk And Sidewalk Ramps

Continuous sidewalks have been provided on both the north and south sides of 22nd Street from 10th Avenue to 2nd Avenue. East of 2nd Avenue, sidewalks are located in non-continuous sections until the project limits just west of Kino Parkway. Map 9 depicts the sidewalks and sidewalk ramps along 22nd Street.

UPRR

The UPRR crossing is located between 2nd Avenue and Euclid Avenue. This crossing has pavement marking and signing, as well as gates to serve as a protective barrier between trains and motor vehicles.

Existing Right Of Way And Traffic Volumes

The existing right-of-way (ROW) on 22nd Street varies from approximately 90 feet to approximately 125 feet. In the year 2007, the average daily traffic (ADT) on 22nd Street was approximately 34,000 vehicles per day (vpd). The cross street with the highest volume was Park Avenue, with approximately 21,000 vpd. In the AM peak hours, the majority of vehicular traffic travels eastbound, while in the PM peak hours, higher traffic volumes are experienced in the westbound direction. In 2030, it is anticipated that the ADT on 22nd Street will be approximately 55,000 vpd, with the heaviest cross street volumes on 6th Avenue with 30,000 vpd and Park Avenue with 29,000 vpd.



UPRR, looking north



Sidewalk and ramp at intersection of 22nd Street and 6th Avenue



Crosswalks and ramps on intersection on 22nd Street and Interstate 10 frontage road



Average daily traffic is approximately 34,000 vehicles per day

1.9 Utility Analysis

Existing utilities along the 22nd Street corridor will need to be analyzed for potential impacts and relocation needs. Water, storm sewer, sanitary sewer, and franchise utility poles are the most prevalent utilities within the project limits. It should also be noted that the 22nd Street and Interstate 10 interchange is under construction and the utilities will need to be updated after construction is complete.

Water

Within the right-of-way along 22nd Street there is a 12-inch water main that runs the entire project length. The water main is predominately located within the west-bound travel lanes and is comprised of various pipe materials. At each major street intersection, and at a few alleyways, water main crossings exist. The water main crossings are typically 4 to 12-inches and vary in material type. One 48-inch water main crossing exists at the intersection of 22nd Street and South 3rd Avenue and one 36-inch is located at the crossing of 22nd Street and South 10th Avenue.

Storm Sewer

Minimal storm sewer utilities are located within the 22nd Street right-of-way. The two major storm sewer features consist of transverse box and arch culverts that are designed to convey the Downtown Airport Wash and the drainage way. These are located approximately one block west of South Euclid Avenue. Depending on current construction at the Interstate 10 interchange, 24 to 42-inch pipes will cross 22nd Street both east and west of the interchange. Minor storm sewer facilities include catch basins on 22nd Street and a 30-inch pipe crossing at South Meyer Avenue.



Culvert east of UPRR



Culvert on south side of 22nd Street, west of Osbourne Avenue

Sanitary Sewer

Sanitary sewer facilities are located within the 22nd Street right-of-way. Sanitary sewer structures and mains are located along the 22nd Street center line from South Osborne Avenue to South 6th Avenue and South Euclid Avenue to Park. These mains range from six to 15-inches and vary in material type. Within these limits, sanitary sewers typically extend along the cross streets. A large diameter sanitary sewer crossing, 30-inch, is located at the intersection of 22nd Street and South 3rd Avenue.

Electric

While there are no high voltage power poles located within the project limits, power utilities are predominantly located on the south side of 22nd Street within the right-of-way. The electric utilities share utility poles with other communication lines such as fiber optic cables. The cost for relocation of overhead utilities is not included under the RTA project budget.

Gas

The majority of gas utilities are located on side streets adjacent to 22nd Street. There are a few isolated instances in which two inch gas lines are located along 22nd Street and appear to be within the outside lanes of the roadway.

Communications

Within the right-of-way along 22nd Street, various communication utilities are located on utility poles or underground. Fiber optic, telephone, and cable television lines on utility poles on the south side of 22nd Street predominate, except between South 8th Avenue and South 7th Avenue. Additional underground cables are located on the majority of cross streets.



Power lines dominate south side of 22nd Street corridor



Power line at southeast corner of 9th Avenue

1.10 Hydrology And Natural Environment

In 1995, the City of Tucson completed a Stormwater Management Plan for the Tucson metropolitan area. The Management Plan is a comprehensive, long-term framework for managing the City's stormwater system. Six hydrologic units (areas with similar geographic and hydrologic characteristics) containing 59 watersheds were identified. Figure 1 shows those units.

The 22nd Street corridor study falls within the Tucson Arroyo Hydrologic Unit. Within this unit, there are portions of the Mission View, 18th Street Wash and Tucson Arroyo watersheds. Figure 2 shows the individual hydrologic units, along with the watersheds contained within that unit, for this study. Within the project area, the 18th Street Wash watershed encompasses 18th Street Wash, Downtown Airport Wash and Colonia Progresso Wash. Downtown Airport Wash and 18th Street Wash are also identified as "Street Washes". Mission View watershed encompasses an unnamed wash and Greyhound Wash. Tucson Arroyo watershed encompasses Railroad Wash.

The contributing watershed area specific to this study measures approximately 2,700 acres (four square miles) and will be delineated as part of this study. The delineation will be included in Technical Memorandum #3. The watershed is bounded by Interstate 10 on the west, Tucson Diversion Channel on the south and the UPRR track on the east, near Barraza Aviation Parkway. The Nogales track runs north-south through the center of the project corridor, just west of Euclid Avenue and acts as a berm and divides the watershed. A portion of the drainage area 618 acres (0.965 square miles) falls within the City of South Tucson boundary.

In the upstream watershed there are over 20 cross drainage structures that range in size. There are multiple small roadside basins and six major detention basins including Interstate 19 to 29th Street, Quince Douglas Cells #2 and #3, and interim basins west of South Kino Parkway from 26th Street to 22nd Street.

There are multiple constructed channels and three substantial natural washes. Two washes are unnamed and the third is Greyhound Wash. 22nd Street is designated as Colonia Progresso Wash from South Osborne Avenue to 8th Avenue. The other constructed washes are Downtown Airport Wash and 18th Street Wash. There are two drainage ways; one running parallel to Interstate 10 and another running parallel to the Nogales track. Numerous low points in the roadway drain runoff into adjacent streets. On 22nd Street, the location of low points in the washes are:

- Colonia Progresso Wash on West 22nd Street, east of Osborne Road
- Colonia Progresso Wash and South 11th Avenue
- Colonia Progresso Wash and South Herndon Avenue
- Colonia Progresso Wash and South 10th Avenue
- Colonia Progresso Wash and South 9th Avenue

All watersheds within the incorporated limits of the City of Tucson have been reviewed by the City engineer for "Balanced Basins" or "Critical Basins" status designation. This designation is for basins that have the potential for severe increases in flooding hazards or have had severe flooding as a direct result of increased urbanization. The Mission View, 18th Street Wash and Tucson Arroyo watersheds have been identified to be neither "Critical" nor "Balance" basins, meaning there is no potential for severe flooding due to urbanization.

The 22nd Street corridor Interstate 10 to Kino Parkway is a 1.7 mile segment of roadway with curb and no gutter. On this corridor there are curb opening inlets from Interstate 10 to 8th Avenue. There are no storm drain systems from 8th Avenue to Kino Parkway where the stormwater runoff is conveyed within the roadway. In the upstream watershed there are few storm drain systems, with the roadways serving as channels during a rain event.

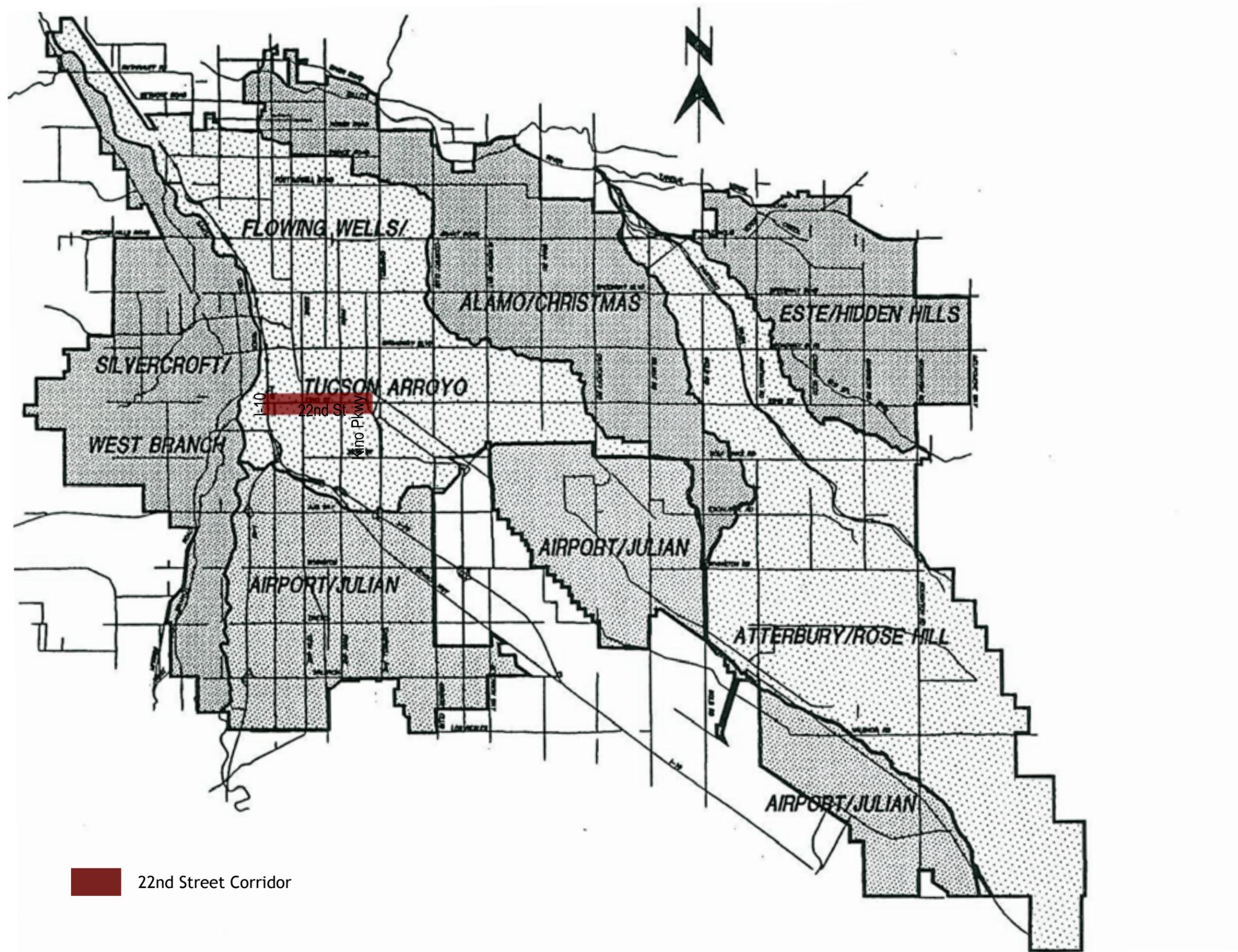


Figure 1: Hydrologic Units

The Federal Emergency Management Agency (FEMA) produces Flood Insurance Rate Maps (FIRM) according to various levels of flood risk. Figures 3a and 3b show the FEMA FIRM flood zones. Zone designations B, C and X indicate moderate to low risk areas, zone A, AH, and AO indicate high risk areas. Zone D indicates an undetermined risk area. Zone AE is defined as “Areas subject to inundation by the 1-percent-annual chance flood event determined by detailed methods”. The project area falls within the zone designated as X, meaning moderate to low risk of flooding. Zone X designation does not mean flood free and does not include local/urban drainage mapping. FEMA mapping is performed on a national scale. FEMA encourages local communities to perform drainage studies to gain a more specific flooding picture. The City’s drainage manual defines a flood as “a temporary rise in flow or stage of any channel, stream, wash or watercourse that results in water overtopping the banks and inundating adjacent areas”. A search for local, city floodplain mapping studies is in process. Community members have indicated that flooding occurs at multiple areas during any rain event making the roadways impassible. Significant offsite drainage issues also exist along 22nd Street.

Based on the hydrologic watershed (HEC-1) modeling performed as part of the TSMS study, the City has established concentration points throughout the city. Each node has an associated watershed name, watershed identification letter, node identification number and flow (Q) data. Some flows have been verified by city drainage personnel while others are still in draft, unverified form (Table 2).

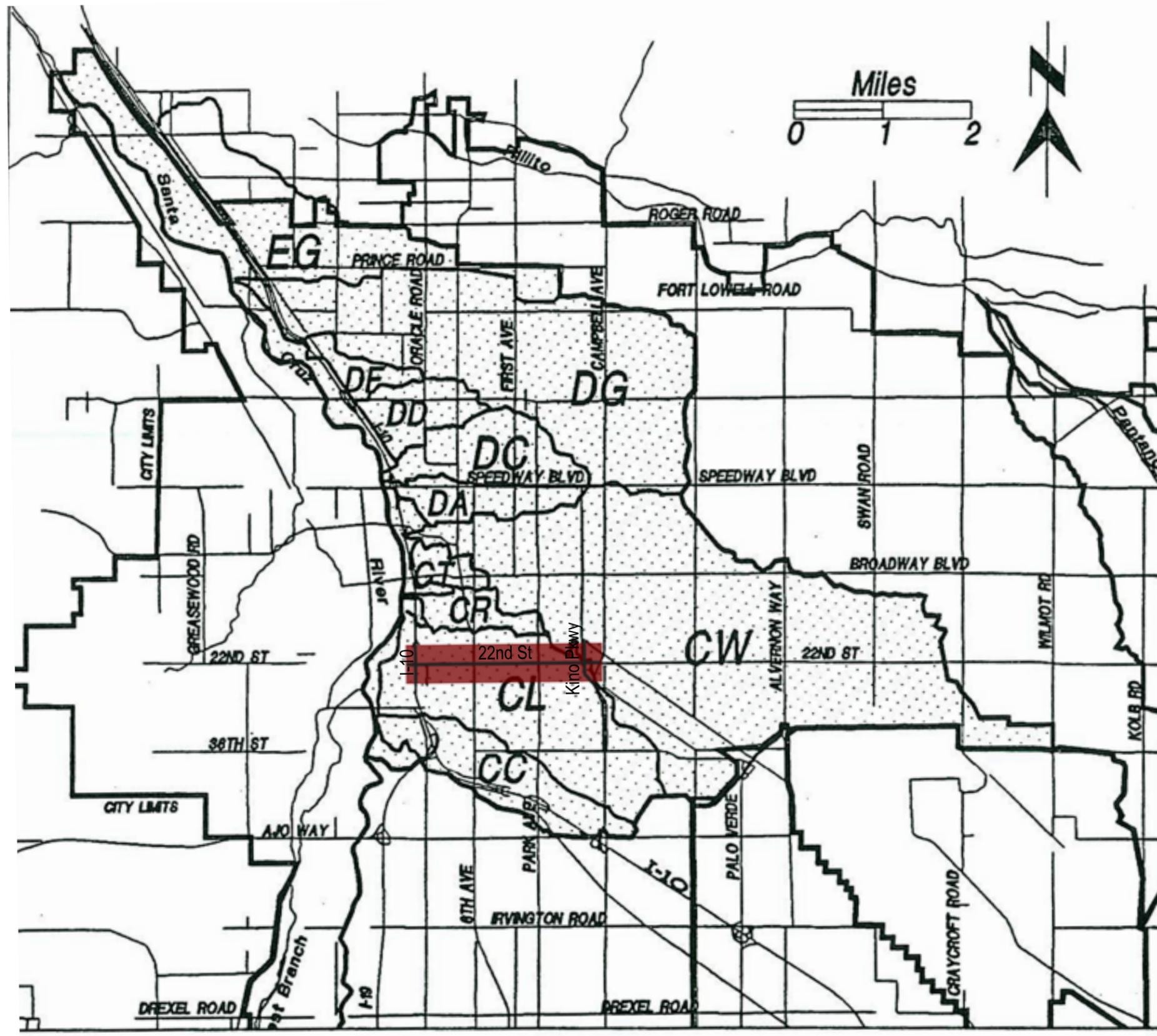


Drainage area on west side of the 22nd Street Corridor



Drainage area on east side of the 22nd Street Corridor

Table 2: LOCATION OF TUCSON STORMWATER MANAGEMENT STUDY NODES (Concentration Points)					
TSMS Watershed	TSMS Watershed ID	TSMS Node ID	Q100	Verified	Location
Mission View	CC	N0010	418	Yes	Near E Hidalgo & S Kino Prwky
Mission View	CC	N0020	466	Yes	Near E 38th St & S Kino Ave
Mission View	CC	N0030	523	Yes	Near W 35th St & S 6th Ave
Mission View	CC	N0060	95	Yes	W 37th St & S 10th Ave
Mission View	CC	N0060	1128	No	Near W 31 St & N I-19 Ramp
18th Street Wash Street	CL	N0100	952	No	W. 22nd St & S Osborne St
18th Street Wash Street	CL	N0100	1417	No	W. 22nd St & S Osborne St
18th Street Wash Street	CL	N0100	474	No	W. 22nd St & S Osborne St
18th Street Wash Street	CL	N0050	1090	No	E. 22nd Street & Euclid Ave
18th Street Wash Street	CL	N0123	13	Yes	W 27th St near W I-10
18th Street Wash Street	CL	N0121	121	Yes	W 28th St near W I-10
18th Street Wash Street	CL	N0122	62	Yes	W 29th St near W I-10
18th Street Wash Street	CL	N0048	215	No	E 23rd St near S Kino Prwky
18th Street Wash Street	CL	N0046	586	No	E 24th St & S Park Ave
18th Street Wash Street	CL	N0045	499	No	E 25th St & S Mountain Ave
18th Street Wash Street	CL	N0044	46	No	E 25th St & S Kino Parkwy
18th Street Wash Street	CL	N0042	200	No	E 27th St near S Kino Parkwy
18th Street Wash Street	CL	N0090	246	No	E 27th St near S Euclid Ave
18th Street Wash Street	CL	N0031	248	No	E Silverlake Rd & S Mountain Ave
18th Street Wash Street	CL	N0025	64	Yes	E Silverlake Rd & S Mountain Ave
18th Street Wash Street	CL	N0020	206	Yes	E 31st St near E Saint Apollonia St
18th Street Wash Street	CL	N0010 outflow	279	Yes	E 33rd St near E Joan of Arc Dr
18th Street Wash Street	CL	N0010 inflow	1048	Yes	E 34th St near S Martin Ave
Tucson Arroyo	CW	N0590	1034	No	E. 22nd Street & Aviation Prwky
Tucson Arroyo	CW	N0570	732	No	E 23rd & S Campbell Ave
Tucson Arroyo	CW	N0520	573	No	E 35th St & E Menor SV
Tucson Arroyo	CW	N0540	642	No	E 31 St & E Fairland Av
Tucson Diversion Channel	-	BW N1030	2159	No	Near W I-10 Ramp & E Jason Vista
Tucson Diversion Channel	-	BW N1060	2269	No	E Ajo Wy near I-10



LEGEND

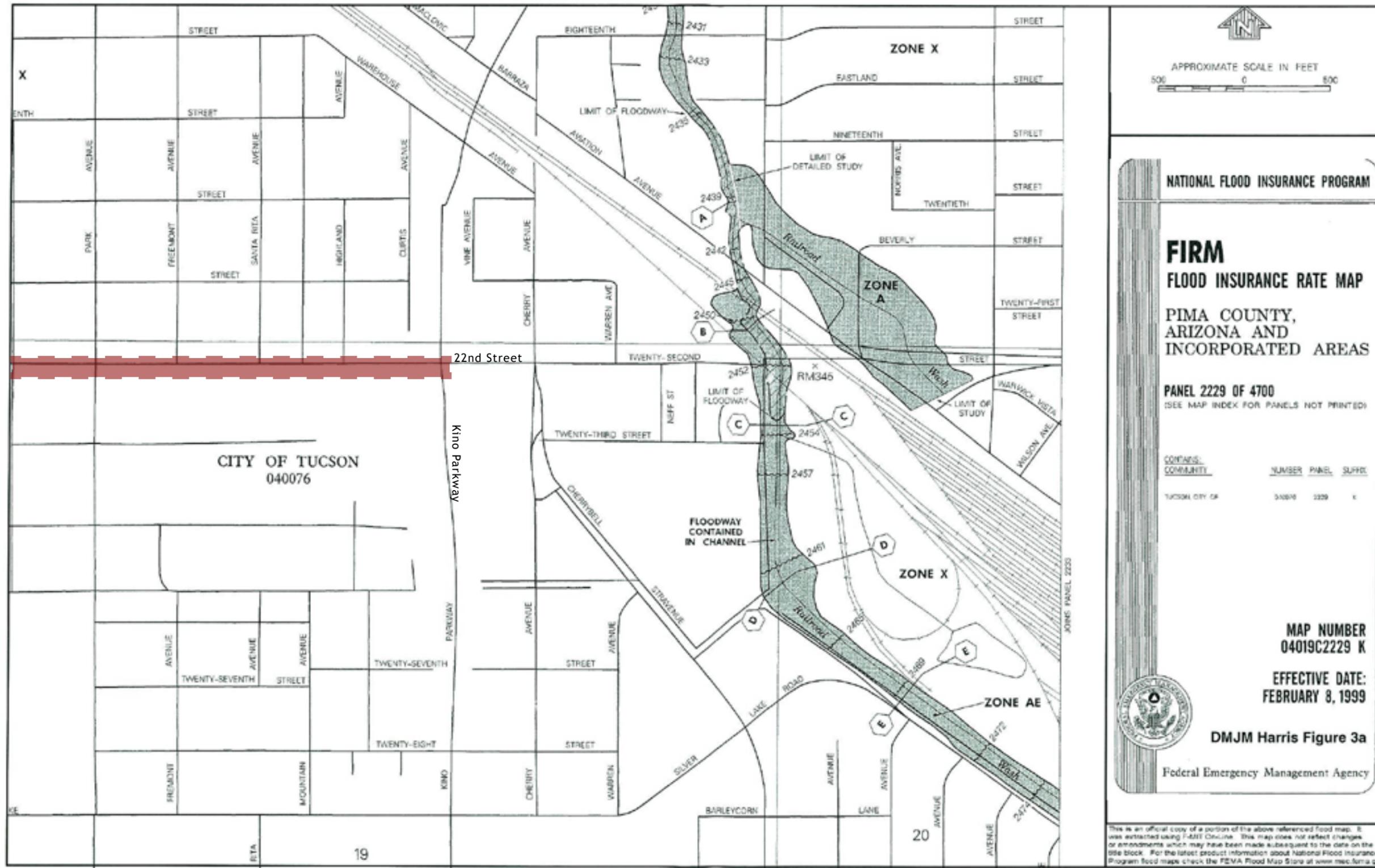
 represents hydrologic unit within study area

Watersheds within hydrologic unit

- EG—Ruthrauff Wash
- DG—Flowing Wells Wash
- DF—Krueger Wash
- DD—Grant Wash
- DC—Bronx Wash
- DA—West University
- CW—Tucson Arroyo
- CT—Downtown
- CR—Cushing Street Wash
- CL—18th Street Wash
- CC—Mission View Wash

 22nd Street Corridor

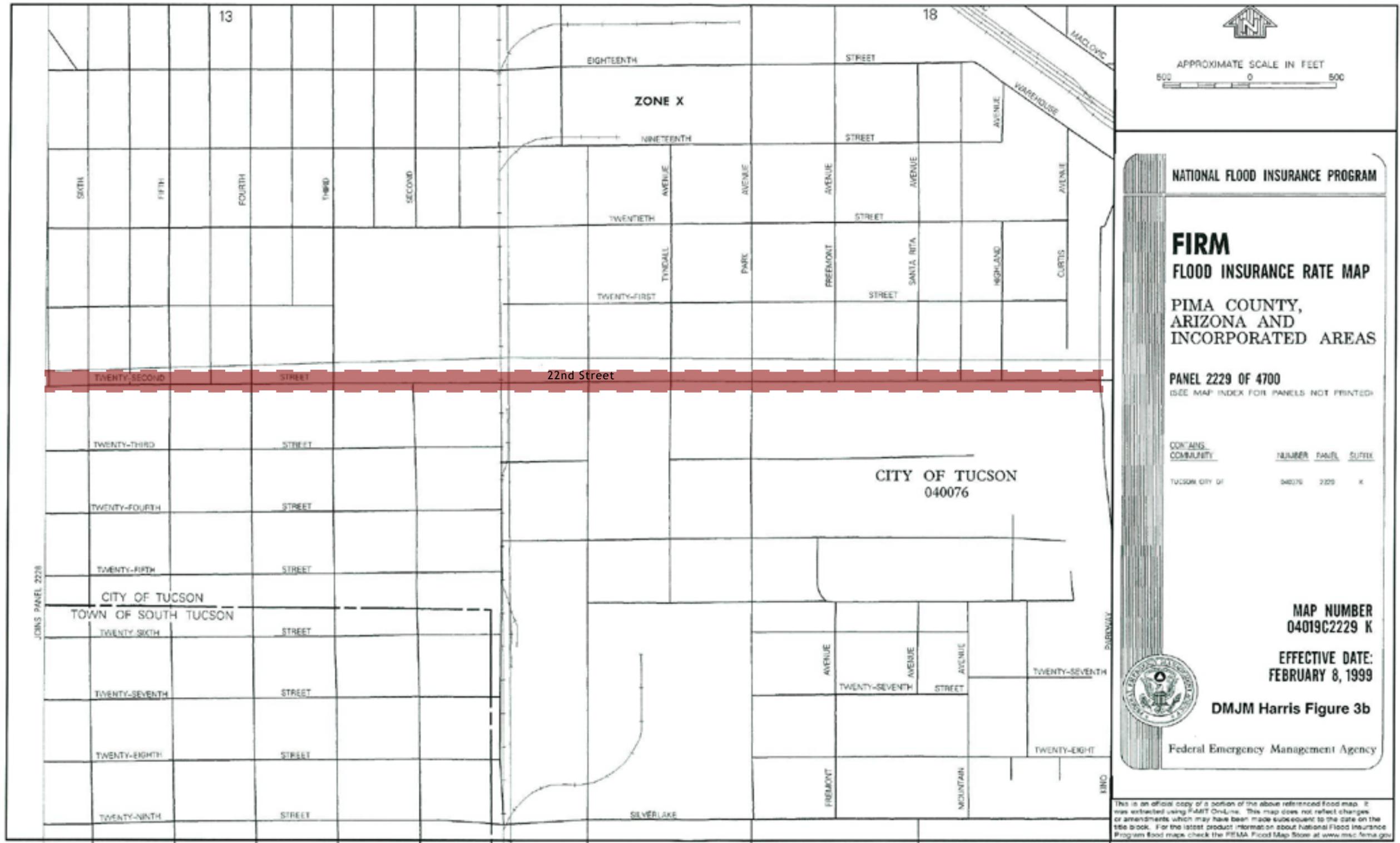
Figure 2: Flowing Wells/Tucson Arroyo Hydrologic Unit



 22nd Street Corridor

Figure 3a: FIRM

22nd Street Corridor Study From I-10 to Kino Parkway



22nd Street Corridor

Figure 3b: FIRM