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Table D-1. 2012-2016 racial and ethnic demographics

Area	Total Population	White		African American		Native American		Asian		Pacific Islander		Other Race		Two or More Races		Hispanic or Latino by Origin ^a	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
CT 20	6,210	4,756	76.6	307	4.9	92	1.5	38	0.6	0	0	712	11.5	305	4.9	3,950	63.6
CT 21	5,980	3,043	50.9	479	8.0	415	6.9	0	0.0	4	0.1	1,827	30.6	212	3.5	4,791	80.1
CT 22.01	3,515	1,788	50.9	193	5.5	172	4.9	0	0.0	8	0.2	1,161	33.0	193	5.5	2,626	74.7
CT 22.02	3,224	1,750	54.3	329	10.2	285	8.8	41	1.3	0	0.0	692	21.5	127	3.9	2,364	73.3
CT 23	5,627	3,558	63.2	170	3.0	575	10.2	13	0.2	0	0.0	1,105	19.6	206	3.7	4,492	79.8
CT 24	5,909	3,730	63.1	195	3.3	242	4.1	58	1.0	0	0.0	1,455	24.6	229	3.9	5,296	89.6
CT 25.01	5,798	4,157	71.7	235	4.1	358	6.2	15	0.3	0	0	841	14.5	192	3.3	4,018	69.3
CT 36	5,623	3,568	63.5	856	15.2	80	1.4	417	7.4	0	0.0	118	2.1	584	10.4	988	17.6
CT 40.73	4,752	3,876	81.6	267	5.6	15	0.3	181	3.8	0	0.0	162	3.4	251	5.3	1,082	22.8
CT 41.12	2,821	2,071	73.4	103	3.7	150	5.3	0	0.0	0	0.0	422	15.0	75	2.7	1,874	66.4
CT 41.15	6,891	5,213	75.6	12	0.2	29	0.4	58	0.8	0	0	1,347	19.5	232	3.4	5,494	79.7
CT 41.16	2,741	1,634	59.6	116	4.2	84	3.1	32	1.2	0	0	701	25.6	174	6.3	2,018	73.6
CT 41.17	6,440	3,933	61.1	535	8.3	47	0.7	109	1.7	0	0.0	1,533	23.8	283	4.4	5,105	79.3
CT 41.18	4,881	3,366	69.0	271	5.6	28	0.6	128	2.6	23	0.5	617	12.6	448	9.2	2,812	57.6
CT 41.21	8,374	5,518	65.9	848	10.1	233	2.8	252	3.0	60	0.7	842	10.1	621	7.4	4,521	54.0
CT 41.25	6,681	5,415	81.1	171	2.6	80	1.2	102	1.5	34	0.5	464	6.9	415	6.2	1,882	28.2
Littletown CDP	645	554	85.9	0	0	0	0	0	0	0	0	58	9.0	33	5.1	385	59.7
Tucson, Arizona	527,586	387,636	73.5	26,467	5.0	15,077	2.9	15,817	3.0	938	0.2	58,012	11.0	23,639	4.5	225,003	42.6
Pima County, Arizona	1,003,338	775,748	77.3	35,337	3.5	32,542	3.2	27,297	2.7	1,483	0.1	89,364	8.9	41,567	4.1	362,265	36.1

Source: US Census Bureau 2016

= Number, % = Percentage, CT = Census Tract

Gray shading identifies the comparison populations

^a In addition to race, residents were asked to categorize themselves by one of two ethnicities: Hispanic or Latino and Not Hispanic or Latino. “Hispanic or Latino by Origin” is derived from the total population, not as a separate race.

Table D-2. 2012-2016 total minority, ages 60 and older, below poverty level, disabled, and female head of household populations

Area	Total Population	Total Minority ^a		Ages 60 and Older		Total Population for Whom Disabled Is Determined	Disabled		Total Population for Whom Poverty Is Determined	Below Poverty Level		Households	Female Head of Household	
		#	%	#	%		#	%		#	%		#	%
CT 20	6,210	4,430	71.3	1,571	25.3	6,210	922	14.8	6,210	749	12.1	2,594	464	17.9
CT 21	5,980	5,435	90.9	819	13.7	5,899	612	10.4	5,915	2,014	34.0	1,916	391	20.4
CT 22.01	3,515	3,046	86.7	619	17.6	3,497	557	15.9	3,444	1,446	42.0	1,171	362	30.9
CT 22.02	3,224	3,026	93.9	600	18.6	3,224	649	20.1	3,145	1,150	36.6	1,117	273	24.4
CT 23	5,627	5075	90.2	1,024	18.2	5,612	1,246	22.2	5,612	2,746	48.9	1,964	550	28.0
CT 24	5,909	5,611	95.0	1,005	17.0	5,909	1,044	17.7	5,847	2,279	39.0	1,965	464	23.6
CT 25.01	5,798	4,510	77.8	1,264	21.8	3,881	839	21.6	3,898	1,390	35.7	1,583	267	16.9
CT 36	5,623	2,696	47.9	67	1.2	4,082	193	4.7	4,922	669	13.6	1,473	171	9.8
CT 40.73	4,752	1,739	36.6	561	11.8	4,708	569	12.1	4,714	252	5.3	1,574	194	12.3
CT 41.12	2,821	2,098	74.4	420	14.9	2,821	481	17.1	2,821	905	29.7	868	216	24.9
CT 41.15	6,891	5,583	81.0	551	8	6,891	1,121	16.3	6,891	3,217	46.7	2,131	618	29.0
CT 41.16	2,741	2,272	82.9	203	7.4	2,726	441	16.2	2,710	607	22.4	830	264	31.8
CT 41.17	6,440	5,760	89.4	650	10.1	6,409	738	11.5	6,414	1,804	32.1	1,864	561	30.1
CT 41.18	4,881	3,396	69.6	644	13.2	4,570	406	8.9	4,527	529	11.9	1,536	124	8.1
CT 41.21	8,374	6084	72.7	687	8.2	6,513	508	7.8	6,550	583	11.7	2,089	376	18.0
CT 41.25	6,681	2419	36.2	2,091	31.3	5,878	925	15.7	5,953	357	8.9	2,504	163	6.5
Littletown CDP	645	385	59.7	75	11.6	645	112	17.4	645	97	15.0	243	0.0	0.0
Tucson, Arizona	527,586	287,549	54.5	99,714	18.9	511,909	76,706	15.0	504,069	126,606	25.1	207,661	32,810	15.8
Pima County, Arizona	1,003,338	468,844	46.7	241,804	24.1	984,069	144,325	14.7	976,120	186,299	19.1	395,390	51,005	12.9

Source: US Census Bureau 2016

= Number, % = Percentage, CT = Census Tract

Gray shading identifies the comparison populations

Green shading denotes populations that are meaningfully higher than the comparison populations

^a “Total Minority” is composed of all people who consider themselves Non-White racially plus those who consider themselves White Hispanic or Latino

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Title VI and Environmental Justice Evaluation

Access Control Concepts for the Craycroft Road Traffic Interchange I-10, Junction I-19 to Kolb Road, and SR 210, Golf Links to I-10 Project

Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, and national origin.

Executive Order 12898, Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations, directs that federal programs, policies, and activities not have disproportionately high and adverse human health and environmental effects on minority and low-income populations. Related statutes protect the rights of women, the elderly, and the disabled. The project coordination and communication also considered Limited English Proficiency (LEP); therefore, printed materials at public meetings and media announcements were in English/Spanish, and a bilingual translator was provided at the meetings.

Background

Access issues involving the commercial and residential properties north of the Craycroft Road Traffic Interchange (TI) were identified as part of the I-10, Junction I-19 to Kolb Road, and State Route (SR) 210, Golf Links to Interstate 10 (I-10) project Phase II studies. The Craycroft Road/Travel Plaza Way intersection is too close to the westbound ramps of I-10, and traffic operations along Craycroft Road north of I-10 are degrading and are expected to continue to degrade in the future. A drainage concern was also identified. To address these concerns, eight access control concepts to manage commercial truck and other vehicle turning movements on Craycroft Road north of I-10 and keep traffic moving were subsequently identified and evaluated. The project design team prepared a summary of these concepts dated August 16, 2018 (see Appendix D). Key elements of these concepts are noted below.

Concept 1 would purchase the truck-related businesses on the east side of Craycroft Road to eliminate a large portion of the freight traffic and would construct a raised median for access control. This concept was eliminated from consideration due to its high cost, lost tax revenue, and employment loss.

Concept 2, which had two variations (2a and 2b), would realign Elvira Road through the community of Littletown. This concept was eliminated from consideration due to its adverse impacts on Littletown, a population protected under Title VI/EJ.

Concepts 3 and 4 would both construct a roundabout on Craycroft Road north of I-10 and a raised median for access control. Concept 4 would also construct a one-way connector road from the Pilot Travel Center to Craycroft Road. These concepts were eliminated due to the potential that roundabout use would generate noise and light impacts (from headlights) on Littletown residents 24 hours a day. Concerns were also expressed from stakeholders that truck drivers would not use the roundabout to make a U-turn to return to I-10 via Craycroft Road but instead would use westbound Littletown Road to access the Valencia Road TI.

Concept 5 would construct a two-way connector road through Triple T Truck Stop to provide access to the I-10 westbound frontage road and a roundabout on Craycroft Road at the intersection with this two-

way connector road. This concept was not preferred over Concepts 3, 7, and 8 because it had a higher cost and the area of impact was greater.

Concept 6 would eliminate the westbound off-ramp at Craycroft Road and shift the I-10 mainline to the south. This concept was eliminated from consideration due to potential loss of business to the Pilot Travel Center and the Triple T Truck Stop, and because it would be more costly than Concept 7.

Concept 7 would construct a new signal at Craycroft and Travel Plaza Way, widen the Craycroft Road TI, and construct a raised median for access control. Minimal impacts to the neighborhood would be anticipated other than right-of-way (ROW) acquisition for widening the TI; however, it would not improve traffic flow (Level of Service [LOS]) as much as Concept 8.

Concept 8 would construct a two-way connector road through Triple T Truck Stop (similar to Concept 5), a T intersection on Craycroft Road at the connector road, and a raised median for access control. This concept would have a higher cost than Concepts 3 and 7 but would be expected to result in an LOS improvement over Concept 7.

Due to the potential presence of populations protected under Title VI and EJ, a Title VI/EJ analysis was completed and is the subject of this technical report. From these concepts, a proposed concept was developed, and ultimately, the proposed concept was incorporated into the Recommended Build Alternative. The proposed concept described below was refined from Concept 8.

Proposed Concept

The proposed concept would improve Craycroft Road between I-10 and Dream Street. These improvements include the following:

- Installing a signalized intersection on Craycroft Road just south of the Circle K convenience market
- Constructing a two-way connector road from the new intersection on Craycroft Road west and south to I-10 through the Triple T Truck Stop property to provide access to the I-10 frontage road in the westbound direction
- Constructing a new bus bay on the north side of the new two-way connector road, just west of Craycroft Road
- Constructing a raised median in Craycroft Road from I-10 north to the new signalized intersection
- Constructing a one-way frontage road on the east side of Craycroft Road north of Elvira Road to provide access, separated from truck traffic, for 10 residential properties that front Craycroft Road in this area
- Constructing a raised median to separate the new one-way frontage road from the northbound Craycroft Road travel lane
- Retaining the existing sidewalk on the east side of Craycroft Road
- Constructing curb, gutter, and sidewalk on the west side of Craycroft Road from the I-10 TI to the new bus bay and the Circle K convenience market
- Constructing drainage inlets, culverts, a drainage channel, and retention/detention basins (one north and one south of I-10)

Implementation of this proposed concept would require the acquisition of new ROW. Figure 1 depicts the proposed concept improvements and the anticipated new ROW.

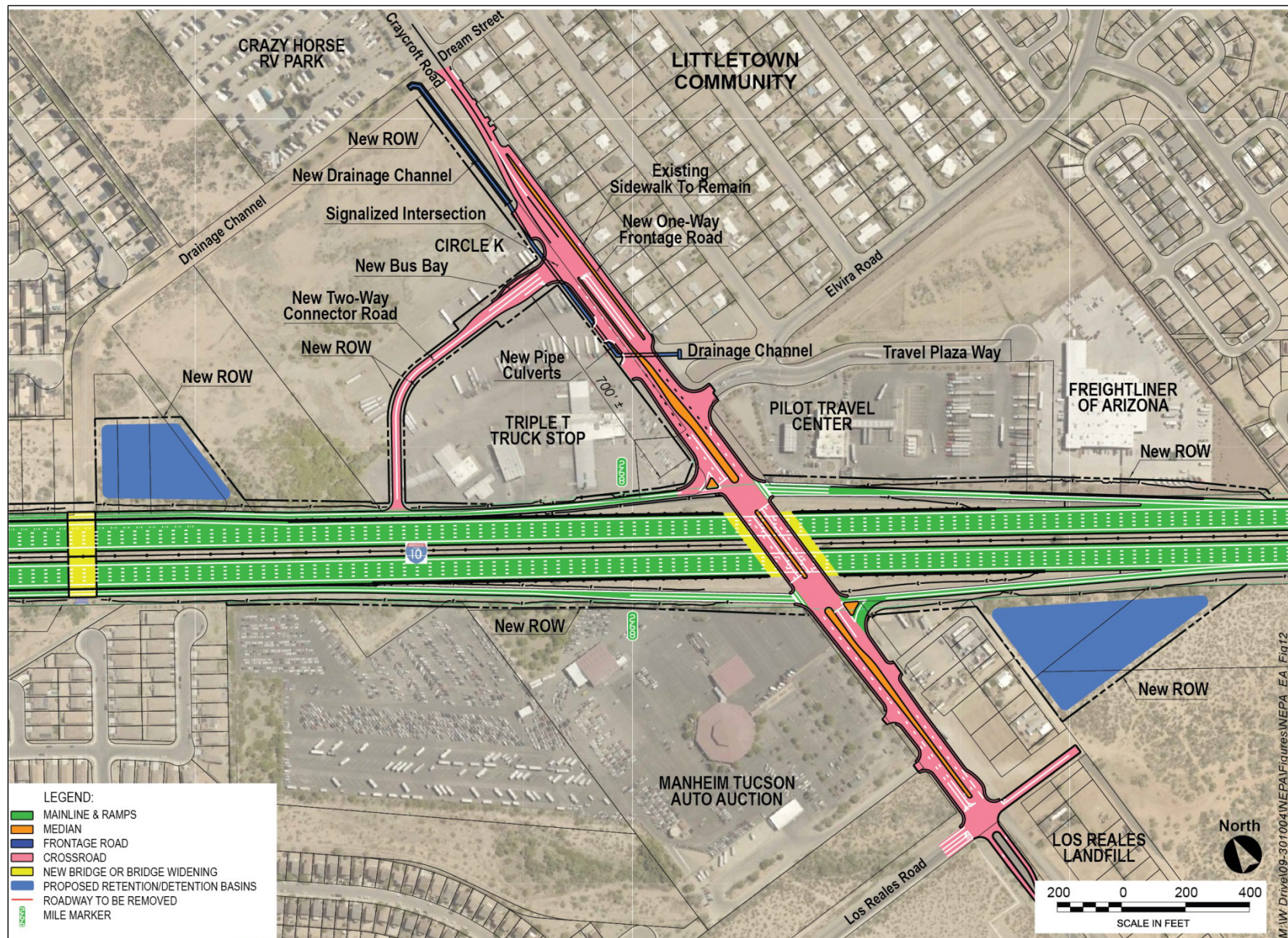


Figure 1. I-10 Craycroft Road TI access plan

Identification of Protected Populations

The project limits along Craycroft Road extend from I-10 north to Dream Street and support commercial and residential land uses. The commercial businesses in the area are adjacent to I-10, east and west of Craycroft Road: Triple T Truck Stop, Circle K convenience market, Pilot Travel Center, and Freightliner of Arizona. On the west side of Craycroft Road, to the north of the Circle K is the Crazy Horse RV Park. On the east side of Craycroft Road, north of the Pilot Travel Center, is the unincorporated residential community of Littleton. This community extends from Elvira Road north to Littleton Road. North of Littleton Road and outside the project limits is an elementary school, a middle school, and the Thomas Jay Regional Park.

For this Title VI/EJ Evaluation, specific demographic characteristics were collected for populations potentially affected directly or indirectly by the project. Littleton, a Census Designated Place (CDP),¹ most closely reflects the resident population potentially affected by project activities in this area. The boundaries of this CDP are Craycroft Road on the west, Van Buren Avenue on the east, Elvira Road on the south, and Littleton Road on the north. The Littleton CDP is referred to as the “selected population” in this analysis.

Data used in this analysis were taken from the U.S. Census Bureau’s American Community Survey (ACS) Five-Year Estimates from the 2012–2016 five-year running average. The ACS uses a random sample design to collect data representative of the overall population in an area.

Total Minority (Racial Minorities, and Hispanic and Latino Concentrations)

Minorities are persons identifying as Black/African American, American Indian, Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, Two or More Races, or being of Hispanic or Latino origin of any race. Selected population areas (census tracts) showing racial minorities, Hispanic or Latino origin, or total minority populations are considered “protected populations” for the purposes of this Title VI/EJ evaluation.

Racial Minorities/Hispanic or Latino Origin

Data from the ACS Five-year Estimates (2012–2016) indicate that racial minorities reside in Littleton CDP. Data indicate that the percentage of the population identifying as Hispanic or Latino for Littleton CDP is 59.7% (Table 1). Littleton CDP is considered a protected population on the basis of its Hispanic or Latino makeup.

¹ A CDP is a concentration of population defined by the Census Bureau for the purposes of gathering and evaluation statistical data.

Table 1. Total racial minority, total Hispanic or Latino origin, and total racial and Hispanic or Latino minority

Area	Total Population	Total Racial Minority ^a		Total Hispanic or Latino Origin ^b		Total Minority (Racial and Hispanic or Latino Origin) ^c	
		#	%	#	%	#	%
Littletown CDP	645	91	14.1	385	59.7	385	59.7
CT 41.18	4,881	1,515	31.0	2,812	57.6	3,396	69.6
City of Tucson	527,586	139,950	26.5	225,003	42.6	287,549	54.5
Pima County	1,003,338	227,590	22.7	362,265	36.1	468,844	46.7

Source: US Census Bureau 2016

CDP = Census Designated Place, CT = Census Tract, # = Number, % = Percentage

Gray shading identifies the comparison populations

Green shading denotes the percentages of the population that are meaningfully higher than those of one or more of the comparison populations

^a Percentage of residents who identify themselves as any race other than White: Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, some other race, and two or more races

^b In addition to race, residents were asked to categorize themselves by one of two ethnicities: Hispanic or Latino and Not Hispanic or Latino

^c Total minority is composed of all people who consider themselves Non-White racially plus those who consider themselves White racially and Hispanic or Latino. This value is not a sum of racial minority and Hispanic or Latino origin totals on this table

Low Income

The U.S. Department of Transportation and the Federal Highway Administration (FHWA) EJ orders define “low income” as a person whose household income is at or below the Department of Health and Human Services poverty guidelines. Data from the ACS Five-year Estimates (2012–2016) indicate that individuals living below the poverty level reside in Littletown CDP (15.0%) (Table 2).

Table 2. Total below poverty level

Area	Population for whom Poverty Is Determined	Below Poverty Level	
		#	%
Littletown CDP	645	97	15.0
CT 41.18	4,527	529	11.7
City of Tucson	504,069	126,606	25.1
Pima County	976,120	186,299	19.1

Source: US Census Bureau 2016

CDP = Census Designated Place, CT = Census Tract, # = Number, % = Percentage

Gray shading identifies the comparison populations

Limited English Proficiency

Title VI of the Civil Rights Act and Executive Order 13166 prohibit recipients of federal financial assistance from discrimination based on national origin. In accordance with Title VI and Executive Order 13166, the Arizona Department of Transportation (ADOT) developed an LEP Language Access Plan. In accordance with this plan, the number of individuals who are not proficient in the English language was collected from the US Census Bureau, ACS, for 2015, for the selected population. Table 3 provides the total number of LEP individuals who speak Spanish or Spanish Creole at home and the percentage that this number represents of the total population for each of the selected populations. Approximately 10% of the Littletown residents five years of age and older speak English less than very well.

Table 3. 2011–2015 language spoken at home by ability to speak English for the population 5 years and over

Area	Population	Spanish or Spanish Creole	Speaks English Less Than Very Well	% of Total Population
Littletown CDP	410	174	43	10.5

Source: U.S. Census Bureau 2015

Impact Analysis

The following section assesses whether the Craycroft Road TI proposed access concept would have disproportionately high and adverse human health and environmental effects on the identified protected minority and low-income populations. Disproportionately high and adverse refers to an adverse effect that would be predominately borne by a minority population and/or a low-income population; or would be suffered by a minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the nonminority population and/or non-low-income population. For transportation projects, negative impacts on resident communities must be balanced with the overall benefit of a transportation improvement. Concerns were identified that the access improvements being considered to Craycroft Road could have a disproportionately high and adverse human health and environmental effect on a population protected under Title VI, EJ, or related statutes.

The following sections address temporary construction-related impacts, long-term changes in access, transit access/accessibility, property acquisitions and displacement of residents and businesses, neighborhood continuity and community cohesion, employment, noise, air quality, and aesthetic values.

Temporary, Construction-Related Impacts

Businesses owners, their employees, customers, suppliers, area residents, and all motorists using the transportation network within the study area could be temporarily affected by construction-related activities. The impacts anticipated include an increase in noise and the generation of dust from the operation of construction equipment, and traffic congestion and delays. Construction activities would be phased to maintain access to residential and commercial properties throughout construction. Craycroft Road and the Craycroft Road TI would remain open throughout construction and no traffic detours would be required. During construction, the existing bus bay would be maintained or a temporary bus stop would be established, until such time as the new bus bay is completed and operational. The construction noise and dust and the construction-related traffic congestion and delays would be temporary and would cease following the completion of construction. For these reasons, temporary construction-related impacts on protected populations would not be disproportionately high and adverse.

Long-term Changes in Access

Three proposed improvements—the new raised median in Craycroft Road, the new connector road and associated signalized T intersection, and the new frontage road—would result in long-term changes in access and circulation in the vicinity of Craycroft Road.

The installation of the raised median in Craycroft Road north of I-10 would restrict ingress and egress for the Pilot Travel Center, Freightliner of Arizona, and Triple T Truck Stop to right-in and right-out turning movements. Following construction, trucks exiting I-10 northbound on Craycroft Road could continue to access Pilot Travel Center and Freightliner of Arizona via Travel Plaza Way. However, all trucks and other

vehicles exiting the Pilot Travel Center and Freightliner of Arizona would be limited to a right turn on northbound Craycroft Road. The proposed two-way connector road through Triple T Truck Stop and associated signalized T intersection would provide truck access back to the existing I-10 westbound frontage road. Trucks could then continue on the frontage road to access I-10 westbound via the Valencia Road on-ramp, or complete a U-turn at the Valencia Road TI to access I-10 eastbound. Some truck traffic headed for eastbound I-10 may use northbound Craycroft Road and westbound Littletown Road to access the Valencia Road TI.

For access to the Triple T Truck Stop, trucks exiting I-10 on northbound Craycroft Road would turn left on the new two-way connector road. Trucks exiting the Triple T Truck Stop could turn right onto Craycroft Road and use the Craycroft Road TI to access I-10 in either direction, or could access the existing I-10 westbound frontage road via the new two-way connector road. The frontage road would provide access to both westbound (via the Valencia Road westbound on-ramp) and eastbound I-10 (via the Valencia Road TI).

Also restricted to right turns, passenger vehicles exiting the Pilot Travel Center and Freightliner of Arizona would travel north on Craycroft Road. These vehicles could complete a U-turn at the new signalized T intersection to head back to the Craycroft Road TI for access to westbound and eastbound I-10 or, similar to truck traffic, could use the new two-way connector road to access the existing I-10 westbound frontage road. The proposed concept would not reduce accessibility to the businesses in the area but could lengthen travel times somewhat for some vehicle movements/destinations. Following construction, however, the proposed concept would be expected to reduce congestion and enhance traffic flow and circulation, a benefit to all motorists traveling through the area.

With the proposed right-in and right-out turning movements, a minor to moderate increase in truck traffic could be expected along Craycroft Road in the vicinity of Littletown. A new frontage road would be constructed to provide access to the residences that front Craycroft Road. The frontage road would be a permanent change in access that would facilitate the separation of truck traffic from the local residential traffic, minimizing potential conflicts, but would not reduce accessibility. The existing sidewalk along the east side of Craycroft Road would be maintained and new sidewalk would be constructed on the west side of Craycroft Road from the Craycroft TI to the new bus bay and the Circle K convenience market. The change in circulation would be minor for the protected population of Littletown, and the proposed concept would reduce congestion and enhance traffic flow and circulation. For these reasons, the long-term change in access would not represent a disproportionately high and adverse impact on a protected population.

Property Acquisitions and Displacement of Persons and Businesses

The proposed concept would require the acquisition of new ROW:

- 2.7 acres to accommodate roadway improvements, new frontage road, and new drainage channel
- 1.4 acres for new two-way connector road and bus bay
- 2.6 acres for new retention/detention basin west of the Triple T Truck Stop
- 4.0 acres for the retention/detention basin south of I-10

No property from any residential lots in Littletown would be acquired and no residents would have to be relocated with the proposed concept. Furthermore, no businesses would be acquired or relocated; therefore, there would be no change in employment opportunities for Littletown residents. For these reasons, the acquisition of ROW would not represent an adverse impact on a protected population.

The proposed concept offers a distinct advantage over concepts considered that would have realigned Elvira Road (Concepts 2a and 2b). These concepts would have required the acquisition of up to a dozen single-family residential properties in Littletown, a population protected under Title VI and EJ, and displacement of the occupants.

Transit Access/Accessibility

The proposed concept would relocate the existing bus bay on the west side of Craycroft Road in front of the Triple T Truck Stop. The new location would be on the north side of the new two-way connector road, immediately west of Craycroft Road. The replacement location was identified by Sun Tran, the transit provider in the area, in consideration of their routes and ridership. No impacts to transit access or accessibility are anticipated with the proposed concept.

Neighborhood Continuity and Community Cohesion

For the proposed concept, land acquisition and construction would occur within the existing Craycroft Road ROW and in new areas of ROW to be acquired west of Craycroft Road and south of Travel Plaza Way. No land would be acquired from and no new infrastructure or physical barriers would be constructed within Littletown.

Construction of the raised median in Craycroft Road and the frontage road along the east side of Craycroft Road would result in a permanent change in vehicular circulation for some Littletown residents. The change in circulation would be minor, and the proposed concept would reduce congestion and enhance traffic flow and circulation. Furthermore, the frontage road would facilitate access to the homes along its frontage separated from truck traffic on Craycroft Road. The existing sidewalk along the east side of Craycroft Road would be maintained and a new sidewalk added on the west side of Craycroft between the TI and the Circle K convenience market.

The Sunnyside Unified School District expressed concern with any increase in traffic on Littletown Road because of the two schools that front this road. Representatives noted that Littletown Road was narrow, the sidewalks are not continuous, there are gaps in the street lighting, roadway shoulders are narrow or do not exist, and no curbs or gutters are present to control drainage. Though the construction of a median in Craycroft Road would require traffic exiting the Pilot Travel Center and Freightliner of Arizona to turn right or north on Craycroft Road, the construction of a new two-way connector road would provide a direct route to the I-10 frontage road for westbound or eastbound I-10 traffic, reducing the potential number of trucks that would use Littletown Road. To address these concerns, ADOT intends to work with the Sunnyside Unified School District during design to identify measures to reduce the potential for conflicts.

The proposed concept would not adversely affect the movement of goods and services in the area, and residents of Littletown would not be cutoff from jobs, schools, medical care, grocery stores, public transit, and other essential resources and services. The proposed concept would not divide the community or diminish it. For these reasons, the proposed concept would preserve Littletown's community cohesion and neighborhood continuity.

The proposed concept stands in strong contrast to Concepts 2a and 2b (Appendix: Concepts 2a and 2b), which would have realigned Elvira Road through Littletown. Concepts 2a and 2b would have had a substantial impact on Littletown's neighborhood continuity and community cohesion. These concepts would have resulted in the need to acquire up to a dozen single-family homes and to relocate the residents. The take of residential properties would have diminished the size of the community. Routing

commercial traffic (including truck traffic) through the interior of the community would have altered the residential character of the neighborhood, and would have created a barrier within the community, segregating parts of the community from the whole.

Employment

Though the proposed concept would require the acquisition of new ROW from the Triple T Truck Stop, no existing facilities would be impacted and the no change in the level of employment as a result of the proposed improvements is anticipated. The proposed concept preserves the existing businesses' access to I-10 and would minimize congestion and delays and would have no disproportionately high and adverse impact on employment in the area.

The proposed concept offers a distinct advantage over one of the previously evaluated concepts (Appendix: Concept 1), which would have involved the outright purchase of the commercial businesses east of Craycroft Road (i.e., Pilot Travel Center and Freightliner of Arizona) to eliminate a large portion of the freight traffic using Craycroft Road. Concept 1 could have had a substantial impact on employment opportunities in the area by eliminating two employers.

Noise

The project noise analysis was performed in compliance with the current (May 2017) ADOT Noise Abatement Requirements (NAR). The ADOT NAR is based on the noise levels that “approach” the FHWA Noise Abatement Criteria (NAC). ADOT defines “approaching” as within 1 A-weighted decibel (dBA) of the FHWA NAC for Category B (residential) land uses. Based on the results of the noise analysis for the project, the predicted noise levels in the Littletown neighborhood “approach²” the Category B NAC of 66 dBA; therefore, evaluation of mitigation measures was required (see Noise Report Final at www.azdot.gov/i10SR210study).

Noise barriers (walls) were considered as mitigation to provide noise shielding to impacted locations. Reasonableness and feasibility criteria were evaluated for each proposed noise wall or wall combination (two or more walls) per the ADOT NAR.

Two options for noise wall combinations were evaluated for the Littletown neighborhood: Option 1, noise walls #9 and #10 (along northbound Craycroft Road and proposed frontage road), and Option 2, noise walls #11 and #12 (along westbound I-10/Craycroft Road westbound overpass and on-ramp). Neither option would satisfy the ADOT NAR under the cost per benefitted receiver conditions. Therefore, neither of these wall combinations was recommended. Increases in noise under the build alternative in the Littletown neighborhood were not considered disproportionately high and adverse when compared with the project limits as a whole.

Air Quality

The air quality analysis for the project as a whole predicted the build alternatives would have a 7% decrease of carbon dioxide emissions by the year 2045 compared to the no-build alternative, and an even greater decrease compared with the existing year. Overall, the project would have minimal impacts from construction activities, Mobile Source Air Toxics, and greenhouse gases. Proposed project-related emissions would not have an adverse effect on ambient air quality or cause a violation of the National Ambient Air Quality Standard for carbon dioxide. There would be no adverse effect on air

² Defined by ADOT as within 1 dBA of the NAC.

quality of the Littletown neighborhood and, therefore, no disproportionately high and adverse impact to this protected population.

Aesthetic Values

The proposed concept would add new components to the viewshed with the construction of a frontage road, an access road through the Triple T Truck Stop, a drainage channel, and retention basins. However, the new improvements are similar in nature to the existing setting and would not constitute a notable change in visual character or visual quality. There would be no disproportionately high and adverse impact on aesthetic values of Littletown.

Historic Resources

A field inventory of historic aged buildings within and adjacent to the project's area of potential effects (APE) was completed and the results reported in *A Historic Building Inventory for the I-10; Jct. I-19 to SR 83 and SR 210, Golf Links to I-10 Project, Tucson, Pima County, Arizona* (Ingwersen et al. 2019). The inventory documented and evaluated historic-era buildings (pre-1967) that could be affected by construction of the project; five of these residences are within Littletown. The Triple T Truck Stop main building was recommended as eligible. All other buildings in the study area were recommended ineligible or unevaluated for inclusion in the National Register of Historic Places (NRHP), and no further cultural resources work is recommended for them. Furthermore, the report recommends that the Littletown neighborhood is ineligible for the NRHP. The recommended alternative does not impact the Triple T Truck Stop building. No impact to historic resources would result from the proposed concept.

Public Involvement

ADOT and FHWA held two public meetings in November 2018: one community-wide meeting in Tucson and one specifically for the Littletown community located at I-10 and Craycroft Road. The meetings covered the overall project status as well as unique design challenges related to the I-10/Craycroft Road TI. The Tucson public meeting was advertised to the general public. The Littletown public meeting dealt with unique commercial and residential access issues related to proposed reconstruction of Craycroft Road north of I-10, adjacent to the community of Littletown.

A targeted outreach strategy was developed with the intent of increasing the Littletown community's involvement in the study and soliciting input regarding issues important to the community. A direct mailer in English and Spanish was sent to 2,826 addresses in the Littletown neighborhood and surrounding communities near the proposed I-10/Craycroft Road TI improvements to inform them of the Littletown public meeting. The public was also notified of the project meetings through newspaper ads, GovDelivery/press releases, social media posts, door hangers distributed to homes and businesses, direct mailers to potentially affected property owners, and public posters. A website was developed to provide an overview of the study, public meeting information, and technical reports (www.azdot.gov/i10SR210study). Multiple methods were established for the public to provide comments: telephone comment line, email, ADOT mail, and written comment forms. Comment forms were provided in English and Spanish. The public involvement actions were in compliance with the ADOT Public Involvement Plan and included LEP language requirements. For more detail, refer to Appendix I of the Environmental Assessment.

Conclusion

Protected populations are present throughout much of the study area; nine out of the 12 CTs in the study area are protected due to their percentage of minority and/or low-income residents. Because the purpose of the project is to address the operational deficiencies, limited capacity, and high crash rates on I-10 within the project limits, and to provide improved access from I-10 to downtown Tucson, the complete avoidance of protected populations would not be possible.

The consideration of multiple access concepts for the Craycroft TI area and the engagement of business representatives, residents, and the school district through public involvement yielded a proposed concept that would have a minimal impact on the protected population of Littleton and would avoid the need to relocate businesses or residents. No disproportionately high and adverse impacts on the protected population of Littleton would occur with the proposed concept.

References

- Ingwersen, Anna, Oslynn Benjamin, and Glennda Gene Luhnnow. 2019. *A Historic Building Inventory for the I-10; Jct. I-19 to Kolb Road and SR 210, Golf Links to I-10 Project, Tucson, Pima County, Arizona*. Report No. 2018-11. Jacobs Engineering Group, Inc., Phoenix, Arizona.
- U.S. Census Bureau. 2015. 2011–2015 American Community Survey, Five-Year Estimates.
- _____. 2016. 2012–2016 American Community Survey, Five-Year Estimates.

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I-10 DCR (I-19 to Kolb Rd and SR 210)
Access Control concepts for the north side of the Craycroft Road TI
August 16, 2018

Background Information

At the I-10, I-19 to Kolb and SR 210 progress meeting (held on July 19, 2017) an access issue involving the commercial and residential properties north of the Craycroft Road TI was identified. Traffic operations north of the interchange have deteriorated with recent developments and it was clear that additional improvements will be needed to make sure the north side of the TI will function well in the future. If no improvements are made the LOS will continue to deteriorate as traffic volumes increase. Pima County nearly completed designing a small project to correct a turning radius issue (for truck traffic) and add sidewalk from I-10 north to Travel Plaza Way. The project was stopped when the City of Tucson annexed the area. Travel Plaza Way (located approximately 320' north of the I-10 westbound ramps) provides access to a Pilot Travel Center (truck stop), a (truck service center) and approximately 1500 residences mostly located to the east of Craycroft Road. This includes an existing subdivision called Littletown. On the west side of Craycroft Road the Tucson Truck Terminal (known as the Triple T Truck Stop) is located on the west side of Craycroft Road just to the north of I-10 (see figure below). Circle K (owned by TTT) and an RV Park with approximately 150 parking spots are also present on the west side of Craycroft Road. One-half mile north of Travel Plaza Way is Littletown Road which runs east-west. The west end of Littletown Road connects to Valencia Road. North of Littletown Road there is an elementary school, a middle school and the Thomas Jay Regional Park.



Craycroft Road currently stops at Littletown Road. The vacant area to the north is isolated by the Julian Wash and the UPRR which greatly reduces the potential area served by the Craycroft Road TI. Littletown Road provides access to Valencia Road to the west and Avocet Drive provides access to Wilmot Road to the east. The vacant parcels located north of the Julian Wash and south of the UPRR could be developed. Pima County owns the parcel north of Littletown Road up to the UPRR and could be used to expand the Thomas Jay Regional Park. Wilmot Arizona LLC owns two parcels that have access to Littletown Road and to Wilmot Road.

Preliminary Traffic Analysis

A traffic impact analysis was prepared for the Pilot Travel Center (Feb. 2013) when it was going through the development process. The analysis concluded that when the Pilot facility is constructed the increase in vehicular traffic will warrant signalization of the Craycroft Road TI. The Pilot Travel Center was constructed and the signals were installed. Recent traffic counts (3/29/18) and subsequent operational analysis for existing conditions indicated the signals are functioning well, LOS B/C during the AM peak hours and B/C during the PM peak hours. Travel Plaza Way intersects with Craycroft Road and has stop control. During the AM peak hour westbound traffic on Travel Plaza Way has 274 vehicles turning left onto Craycroft Road. Most of that traffic and southbound Craycroft Road traffic (148) turn right onto the westbound I-10 on-ramp (267). Even though there are large turning movements, the intersection of Travel Plaza Way and Craycroft Road functions well, LOS A during the AM peak hour and LOS A during the PM peak hour. A recent meeting with the owners of the Triple T Truck Stop, however, reported that southbound queues at the TI will occasionally cause a truck to stop short of making a full left turn onto Craycroft Road thereby blocking northbound travel lanes until the signal phase changes at the TI.

The major geometric issue is the intersection of Craycroft Road and Travel Plaza Way is too close to the westbound ramps (approximately 200'). In the future a lack of adequate southbound storage at the I-10 westbound signal and left-turn turning capacity from Travel Plaza Way to southbound Craycroft Road will cause operational issues. Operational analysis of current conditions with 2040 projected volumes indicates the interchange will reach capacity, LOS D/D during the AM peak hour and LOS C/D during the PM peak hour. The operational analysis of current conditions with 2040 projected volumes at the intersection of Craycroft Road and Travel Plaza Way results in an LOS F during the AM peak hour and LOS F during the PM peak hour.

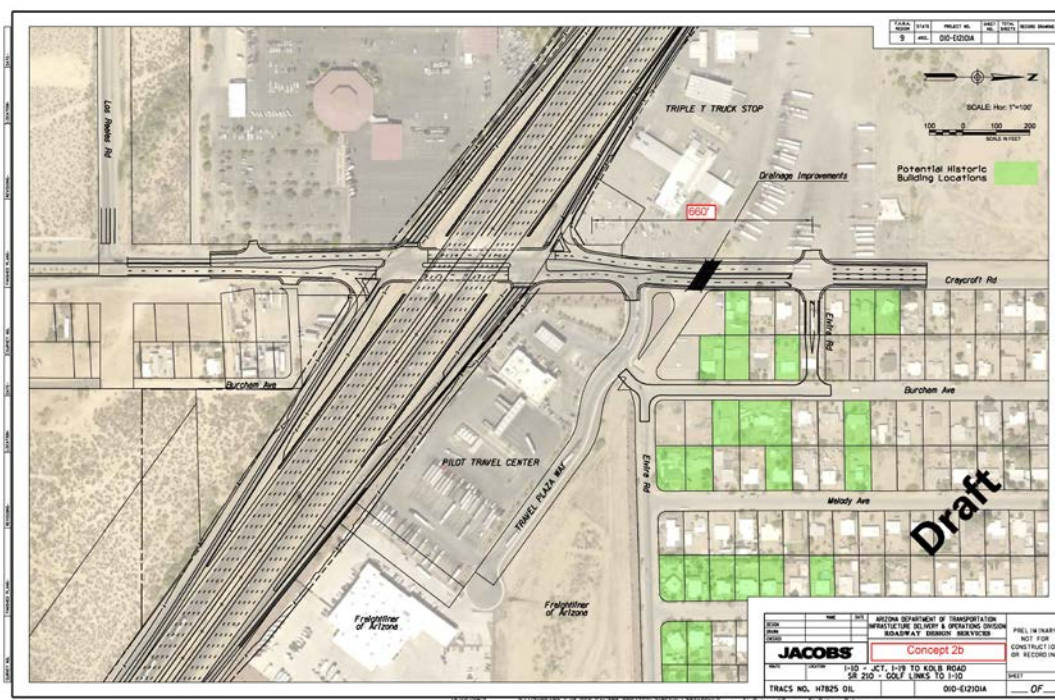
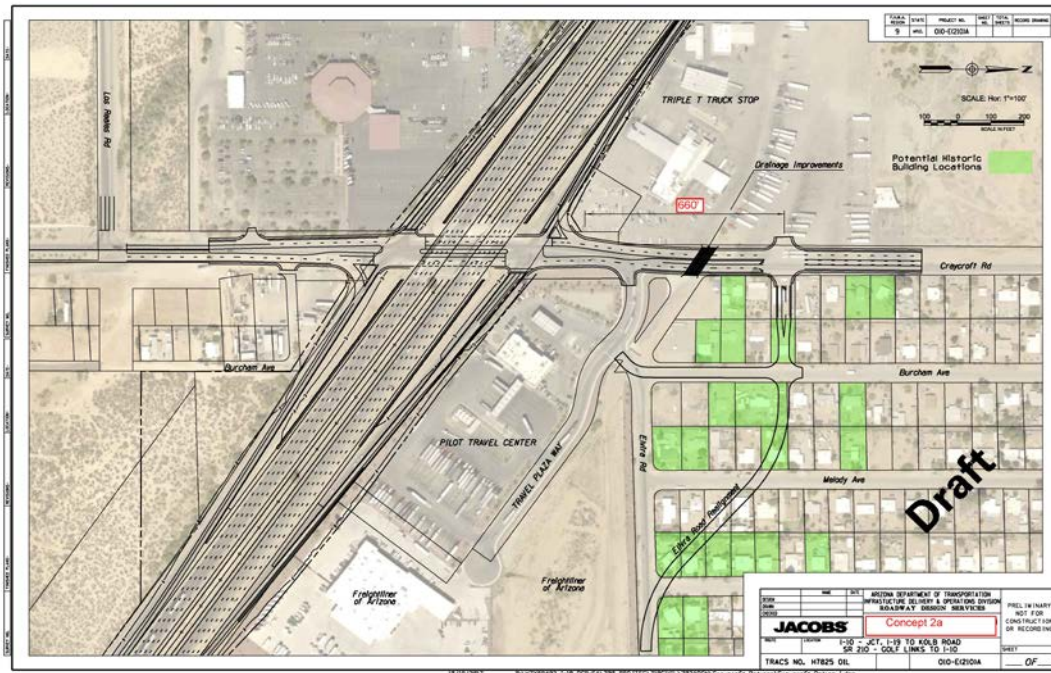
The proposed 2040 improvements for I-10 include widening the interchange. Access control requirements for Craycroft Road included placing a raised median along the center of Craycroft Road north of I-10 for 660 feet to control left-turn access from side streets and residential lots. This improvement will limit Travel Plaza Way to right in and right out. Blocking the left-turn from Travel Plaza Way will affect residents and commercial operators who want to use Craycroft Road to get onto I-10. A portion of the traffic (residents and truckers) will be diverted to Valencia Road for access to I-10 or make a U-turn at the end of the raised median on Craycroft Road north of Travel Plaza Way. Commuter traffic can access Craycroft Road from Dream Street or Littletown Road. However, truck traffic which currently stays close to I-10 will most likely travel north along Craycroft Road onto Littletown Road passing a regional park, an elementary school and a middle school to gain access to I-10 via the Valencia Road TI which is not desirable.

Concepts considered for Access Control Craycroft Road

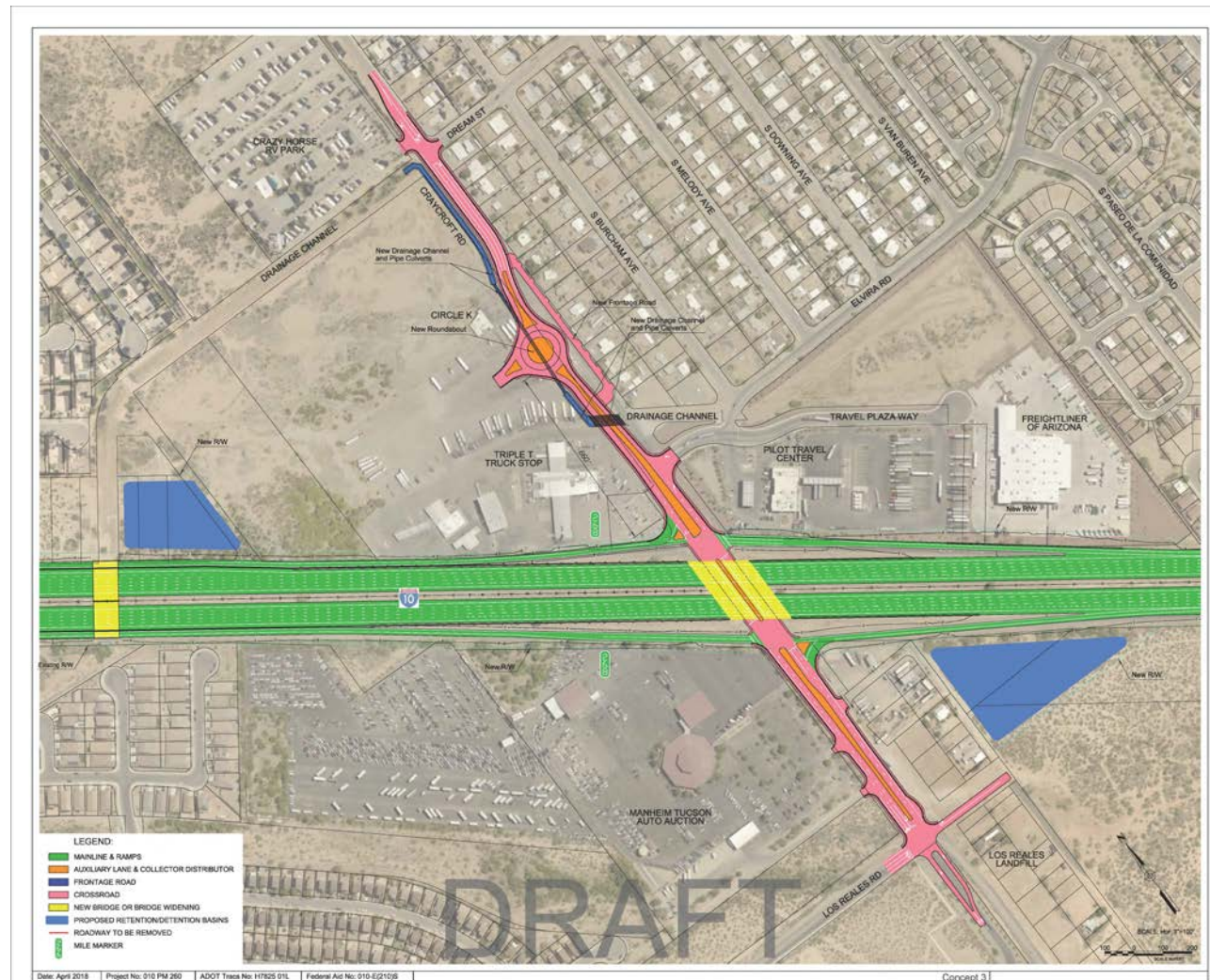
Concept 1) Purchase the truck businesses on the east side of Craycroft Road to eliminate a large portion of the freight traffic. The raised median would be installed for access control. Note: The Triple T Truck Stop would have a left-turn into the property located 660' north of the westbound

ramps plus a left-turn onto the westbound frontage road that provides right-turn access into the parcel.

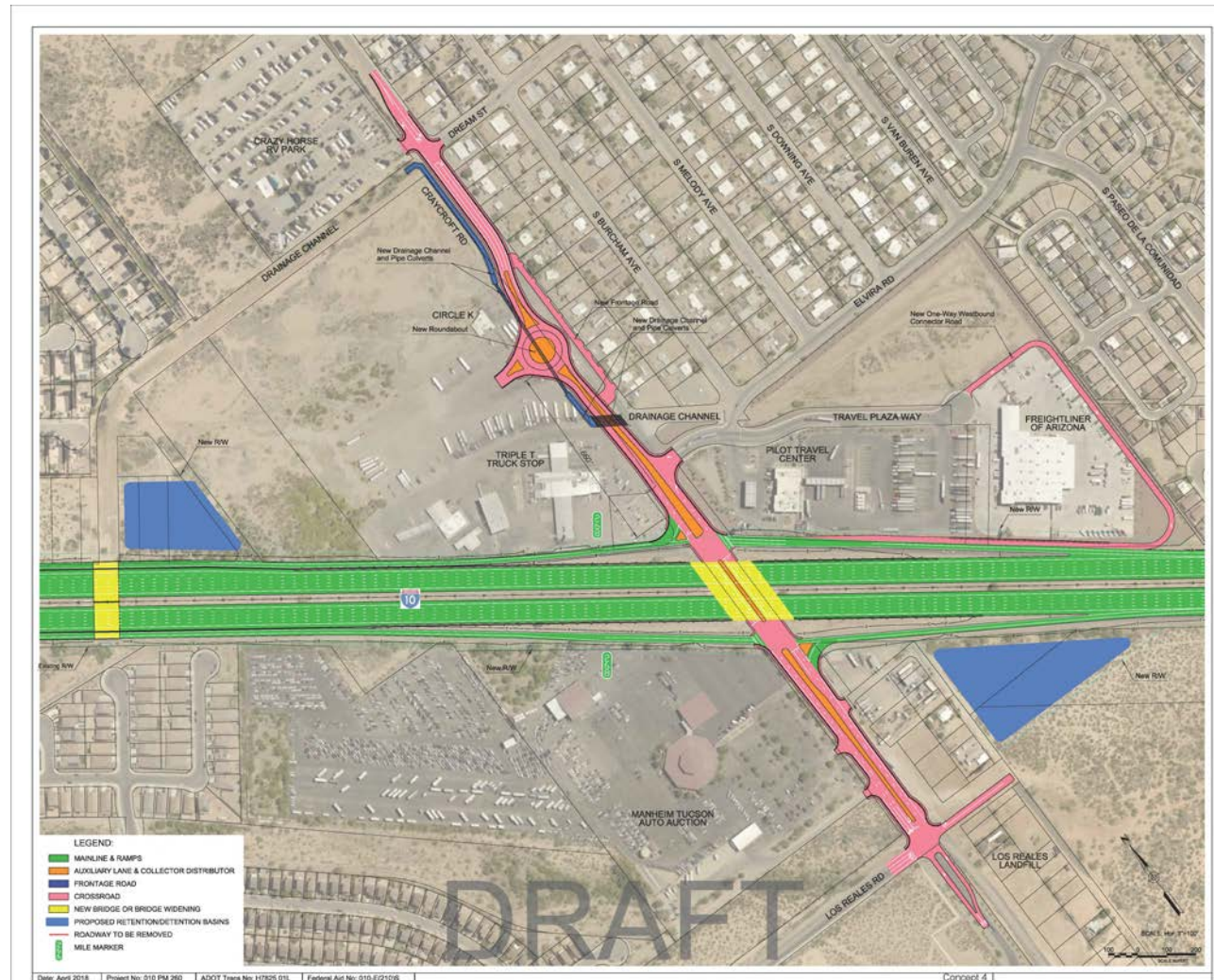
Concept 2) Elvira Road is realigned connecting 660' north of the westbound ramps with a signalized intersection. Potentially a dozen residences would be acquired to relocate Elvira Road. A tee connection from Travel Plaza Way would route vehicles to Elvira Road. The raised median would be installed for access control. Travel Plaza Way would have stop control with right-in and right-out movements. See Concepts 2a and 2b below illustrating two possible alignments for Elvira Road.



Concept 3) Construct a roundabout on Craycroft Road 660' north of the westbound ramps. The raised median would be installed for access control. Travel Plaza Way would operate with stop control and have right-in and right-out movements. Residents and truckers would turn right (north) on Craycroft Road and make a U-turn at the roundabout. The roundabout would be large enough to allow oversized vehicles to make the U-turn. The concept would include a short frontage road to serve nine residences located to the east of the roundabout. A drainage culvert/channel will be needed to convey storm flows under Craycroft Road and to an existing drainage channel to the north. See Concept 3 below.

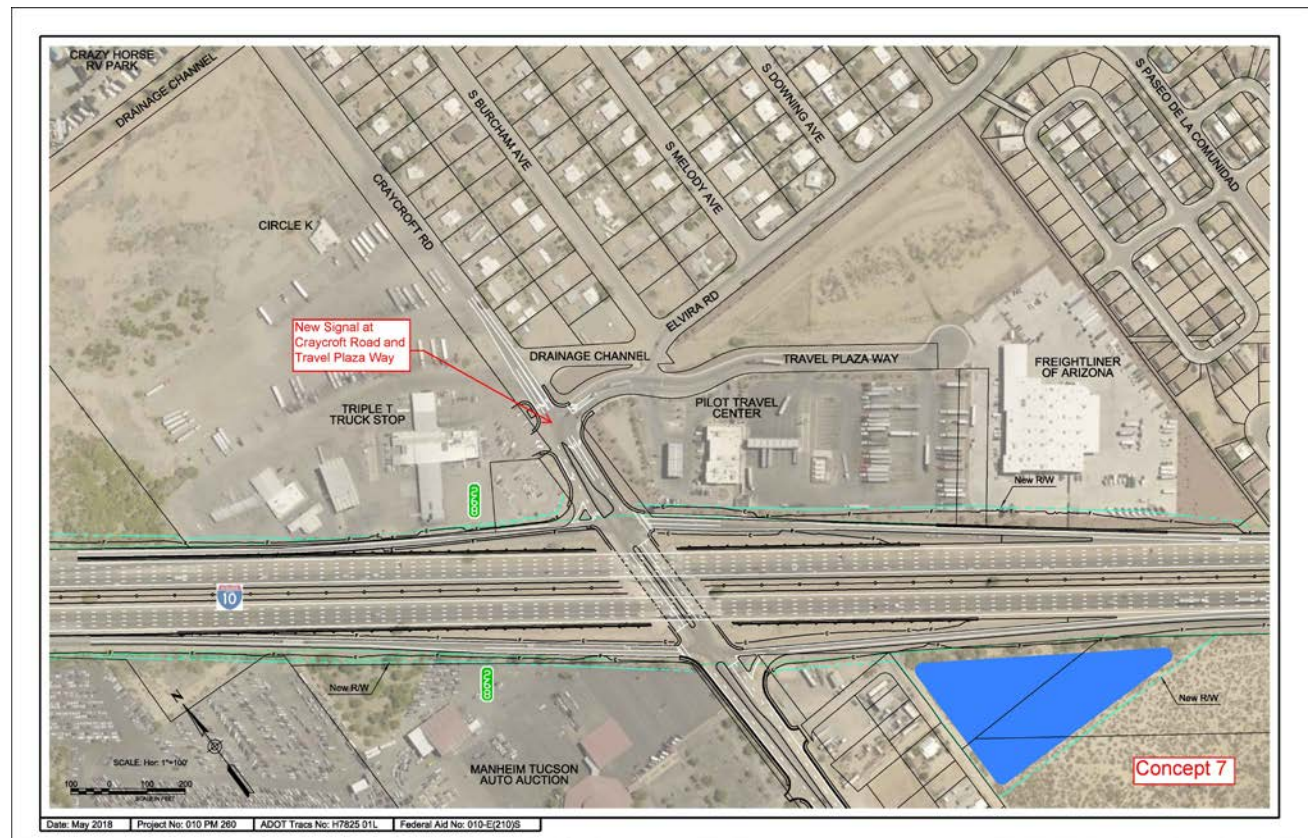


Concept 4) In addition to the roundabout in Concept 3 a one-way connector road from Travel Plaza Way to the I-10 westbound off-ramp is added. The connector road would route traffic from the Pilot Travel Center around the perimeter of the Freightliner of Arizona property. This concept would remove a portion of the vehicular traffic from needing to use the roundabout. See Concept 4 below.

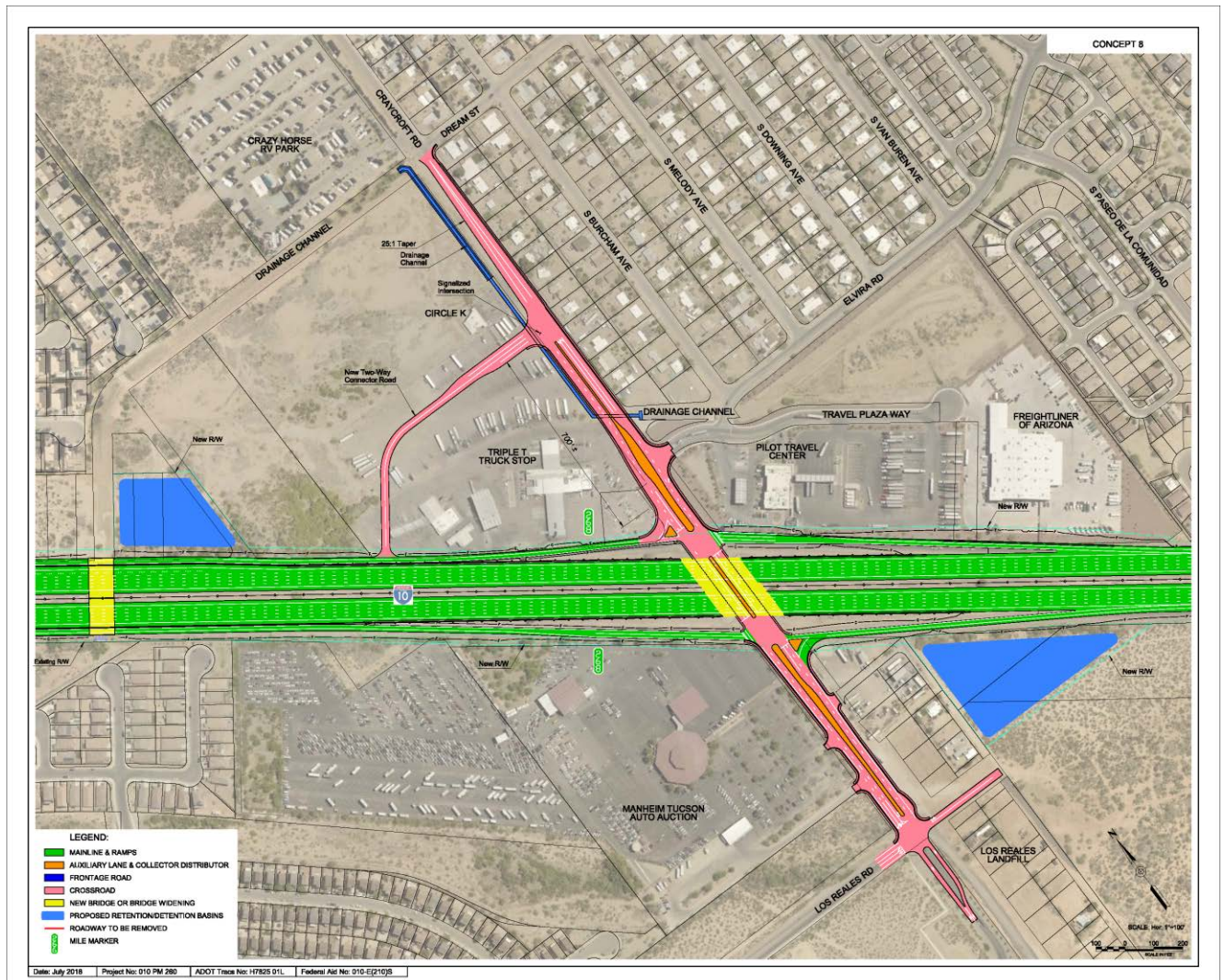


Concept 6) Eliminate the westbound off-ramp at Craycroft Road and retain the westbound frontage road between Wilmot Road and Craycroft Road. Right-in and right-out would be allowed to the Pilot Travel Center and to Freightliner parcels from the westbound frontage road. Maintain existing conditions north of the TI. The I-10 mainline will need to be shifted to the south. The frontage road access would reduce many of the turning movements to and from Craycroft Road. No figure prepared.

Concept 7) Construct a signal at Craycroft Road and Travel Plaza Way that is synchronized with the TI signals and install a raised median up to Travel Plaza Way. Request an access control waiver for Travel Plaza Way as an existing condition. See Concept 7 below.



Concept 8) This concept has a tee intersection with a signal located north of Travel Plaza Way and south of the Circle K. A two-way connector road from the intersection to the I-10 westbound frontage road is added. The connector road would bisect the Triple T parcel. Traffic wanting to enter I-10 westbound from Travel Plaza Way would travel north on Craycroft Road to the two-way connector road. Turn left onto the connector road and make a right-turn on the westbound frontage road to the Valencia Road TI. Passenger cars wanting to enter I-10 eastbound could make a U-turn at the tee intersection and enter I-10 at the Craycroft Road TI. Otherwise, trucks can travel to the Valencia Road TI to enter I-10 eastbound. See figure below.



Other considerations - There is a drainage dip crossing located just north of Travel Plaza Way. The 100-year flow rate is approximately 400 cfs. After crossing over Craycroft Road, the runoff sheet flows to an existing drainage channel located to the west of the Triple T Truck Stop. For Concepts 2 through 6 and 8 the raised median would act as a barrier to runoff crossing over Craycroft Road. The runoff will need to be conveyed under Craycroft Road to allow improvements to the roadway. The drainage improvement will add significantly to the cost for improving the roadway as the runoff will need to be conveyed northerly in a culvert or open channel to the existing drainage channel located near Dream Street. Runoff from residences also flows westward toward Craycroft Road will need to be collected and conveyed under Craycroft Road.

Evaluation of Concepts for Craycroft Road

Concept 1) Purchase the Pilot Travel Center – Purchasing the Pilot Travel Center was estimated at \$6.5 M by ADOT R/W Group. This cost is high relative to improvements for Concept 7 (signalizing Craycroft/Travel Plaza Way). Discussions with City of Tucson management indicated that the Craycroft Road area was recently annexed by the City because the Pilot Travel Center and the Triple T Truck Stop generate a lot of tax revenue. A portion of this revenue would be lost if the Pilot Travel Center was purchased. Other uses of this commercial area would be problematic as access issues would remain as Travel Plaza Way will be right-in/right-out. This concept was not acceptable due to high cost, lost tax revenue and repurposing the commercial area.

Concept 2) Realign Elvira Road – Several alignments were looked at to realign Elvira Road to connect with Craycroft Road 660' north of the I-10 westbound ramp. This would route residential traffic further to the north and truck traffic would exit the Pilot Travel Center travel north along Burcham Avenue to the realigned Elvira Way and make a left-turn onto Craycroft Road. This concept would require the purchase of a number of residential parcels. The Littletown subdivision was developed over 50 years ago. Many of the residential homes potentially could be historic or the neighborhood could be designated as a historic neighborhood. The area is also a low income housing area with a high proportion of minorities. Due to environmental justice rules, removal of residences would come under high scrutiny. Since there are other viable concepts, all concepts realigning Elvira Road were discontinued.

Concept 3) Construct a Roundabout – A roundabout would be constructed on Craycroft Road 660' north of the westbound ramps. The roundabout would be shifted to the west to allow a 20' wide frontage road to be developed to the east of the roundabout to provide access to nine residences. This concept avoids any residential takes. However, traffic on the roundabout would be present 24/7. Vehicle noise and light from headlights would be an issue for adjacent residences. Improvements along Craycroft Road would extend up to Dream Street. The intersection of Dream Street will need to be analyzed to incorporate access to the RV Park. Drainage improvements will parallel Craycroft Road up to Dream Street. Impacts to adjacent residences is high but may be mitigated by using noise walls. The roundabout will require a significant amount of property to be acquired from the Triple T Truck Stop. Concerns were expressed by Craycroft Road stakeholders that truck drivers will not make the U-turn to return to I-10 via the Craycroft Road TI but continue north to Littletown Road to enter I-10 at the Valencia Road TI. This concept meets the access control criteria.

Concept 4) Construct a Roundabout with a one-way connector road to the I-10 westbound off-ramp – Similar to Concept 3 with the added one-way connector road to the I-10 westbound off-ramp. The connector road would shift a number of trucks from the roundabout to the connector road and provide an easier route to I-10. The connector road would impact the Freightliner development potentially removing most of the employee parking. Truck traffic from the Pilot Center would have access to the connector road 24/7. Truck noise and light from headlights would be an issue for adjacent residences located immediately east of Freightliner. Noise and light impacts would be high but should be mitigated by using noise walls. While this concept will make access to I-10 easier for trucks, the impacted area increases. Residents located east of Freightliner and Freightliner itself would be impacted. If Freightliner is acquired, the ADOT R/W Group estimated the cost at \$6.5 M. The vacant area north of Freightliner is an area that the Pilot Travel Center was planning to use for an RV and Bus service center. This use may be affected by the connector roadway. This concept meets the access control criteria but at a higher cost and with greater impacts than Concepts 3 and 7.

Concept 5) Construct a Roundabout with a two-way connector road to the I-10 westbound off-ramp – Similar to Concept 3 with the addition of a two-way connector road to the I-10 westbound off-ramp through the Triple T parcel. This connector road would provide an easier route to I-10 by passing the westbound frontage road signal. The connector road would bisect the Triple T parcel relocating the current truck parking area. This concept would not reduce the number of vehicles using the roundabout. While this concept will make access to I-10 easier for trucks, the impacted area increases. This concept meets the access control criteria but at a higher cost and with greater impacts than Concepts 3 and 7, but less than Concept 4.

If desired, Concept 5 could include the one-way connector road shown in Concept 4 as a means to improve access to the westbound frontage road. This concept would have the highest impact.

Concept 6) Eliminate the westbound off-ramp at Craycroft Road and retain the westbound frontage road between Wilmot Road and Craycroft Road. This concept allows the right-in and right-out for the Pilot Travel Center and the Freightliner parcels. Access control on Craycroft Road will no longer be an issue north of the TI since the frontage road would remove most of the turning movements from Craycroft Road. This concept would require I-10 to be shifted to the south to provide enough space along the north side of I-10 to construct the frontage roads. The I-10 shift would be greater for System Alternative IV than for System Alternative I. The concept was presented to the Craycroft Road stakeholders. The Pilot Travel Center representative was not in favor of this concept because westbound drivers would have to make a decision to get off of I-10 at the Wilmot Road off-ramp which is 1.5 miles to the east. Then travel along the frontage road to get to their business. This would have an impact on their business. This concept meets the access control criteria but at a cost greater than Concept 7. For System Alternative IV the I-10 shift to the south is greater than for Alternative I. More R/W will be needed. The cost to Pilot and Triple T due to loss in business is unknown. The benefit of providing frontage road access to Pilot and Triple T will be at least partially offset by the loss of business. How much is not known.

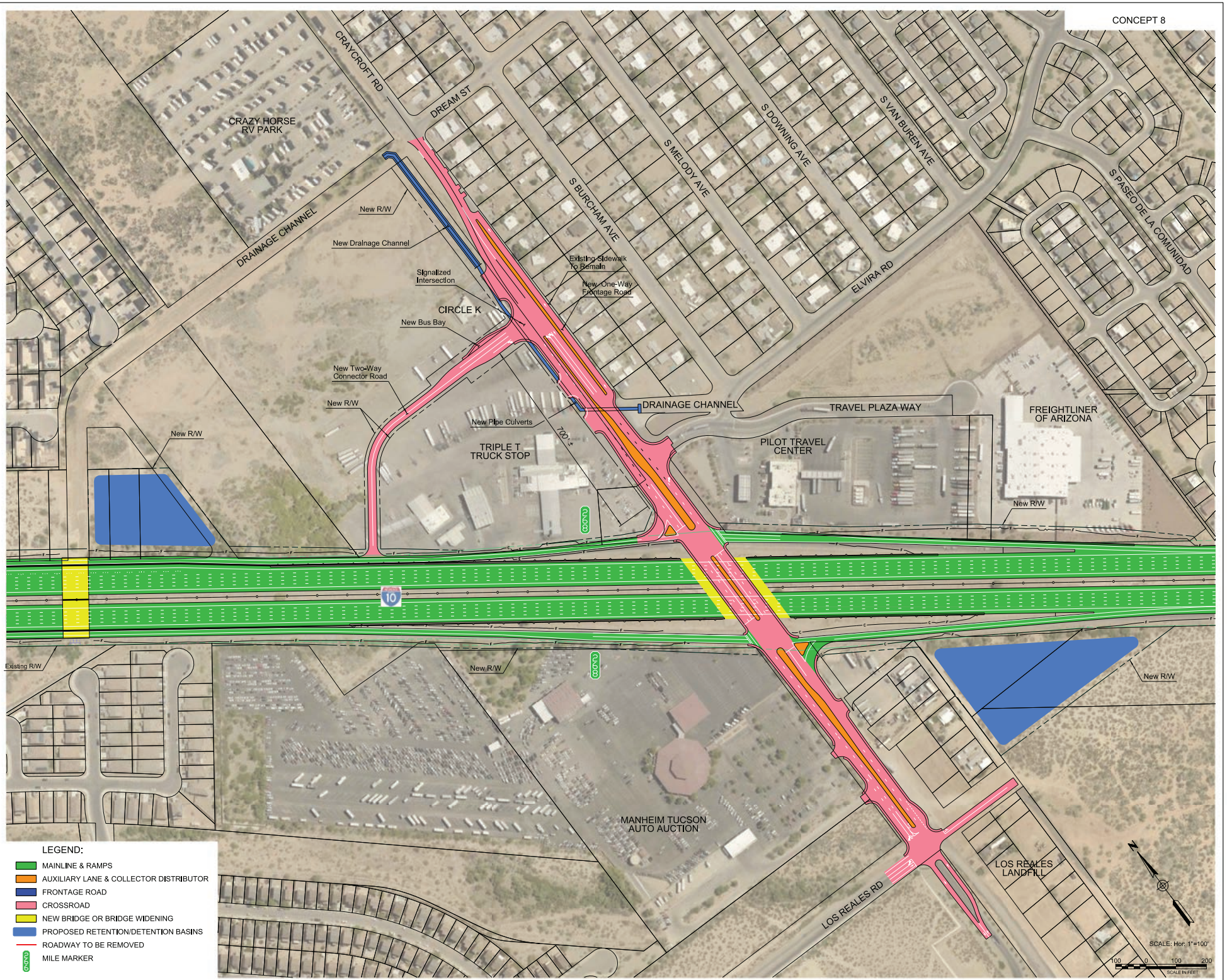
Concept 7) Construct a signal at the intersection of Craycroft Road and Travel Plaza Way – Preliminary Synchro analysis using 2040 projections and widening the Craycroft Road TI indicates the roadway will function with an LOS B in both the AM and PM peak hours. Other than taking right-of-way to widen Craycroft Road from I-10 to Travel Plaza Way there is minimal impact to the neighborhood. This concept would avoid making drainage improvements north of Travel Plaza Way.

Concept 8) Construct a tee intersection with a signal located north of Travel Plaza Way and south of the Circle K with a two-way connector road to the I-10 westbound off-ramp. The two-way connector road to the I-10 westbound off-ramp would pass through the Triple T parcel. This connector road would provide a route to I-10. The connector road would bisect the Triple T parcel relocating the current truck parking area. While this concept will make access to I-10 easier for trucks, the impacted area increases. This concept meets the access control criteria but at a higher cost and with greater impacts than Concepts 3 and 7, but less than Concepts 4 and 5. Preliminary traffic analysis shows the LOS of the northbound to westbound left-turn movement to be A at the 2040 AM peak hour and B at the 2040 PM peak hour. Access into and out of residential lots adjacent to Craycroft Road needs to be analyzed to determine how much to shift Craycroft Road to the west to provide better access and to collect runoff.

Conclusion

Concept 7 has the least impact to the neighborhood and businesses. Concept 7 provides an acceptable level of service for the 2040 design year. Because Travel Plaza Way is an existing condition a variance would be needed. This concept does set precedence by installing a signal in lieu of providing desired access control measures. All other concepts have significant impacts to residences or businesses.

Concept 8 has greater impacts to the neighborhood and businesses than Concept 7. Concept 8 provides an acceptable level of service for the 2040 design year and meets access control guidelines. Triple T's main entrance will shift to the north along the two-way connector road and a right-in/right-out location needs to be identified along Craycroft Road. Access to the Pilot Travel Center will be similar but the return to westbound I-10 will be longer than for existing conditions. The cost to Pilot and Triple T due to loss in business is unknown.



506 - Access Control

Adequate access control is essential to the safe and efficient operation of traffic interchanges. Access control limits should be as long as practicable to help minimize queue spillback, stop-and-go travel, heavy weaving volumes, and poor signal progression. The access-control line for a fully access-controlled freeway will be broken at its intersection with the crossroad at an interchange. **Full access control shall extend along the crossroad a minimum of 660 ft beyond the end of exit ramp radius returns. From entrance ramps, full access control shall extend along the crossroad a minimum of 330 ft beyond the radius return. Between 330 ft and 660 ft from the entrance ramp returns, access along the crossroad shall be limited to right-in / right-out only.** The nearest signalized intersection should be located at least 2640 ft from any ramp intersection unless existing conditions dictate otherwise, or unless an operational analysis can justify a closer proximity. (See [Figure 506A.](#))

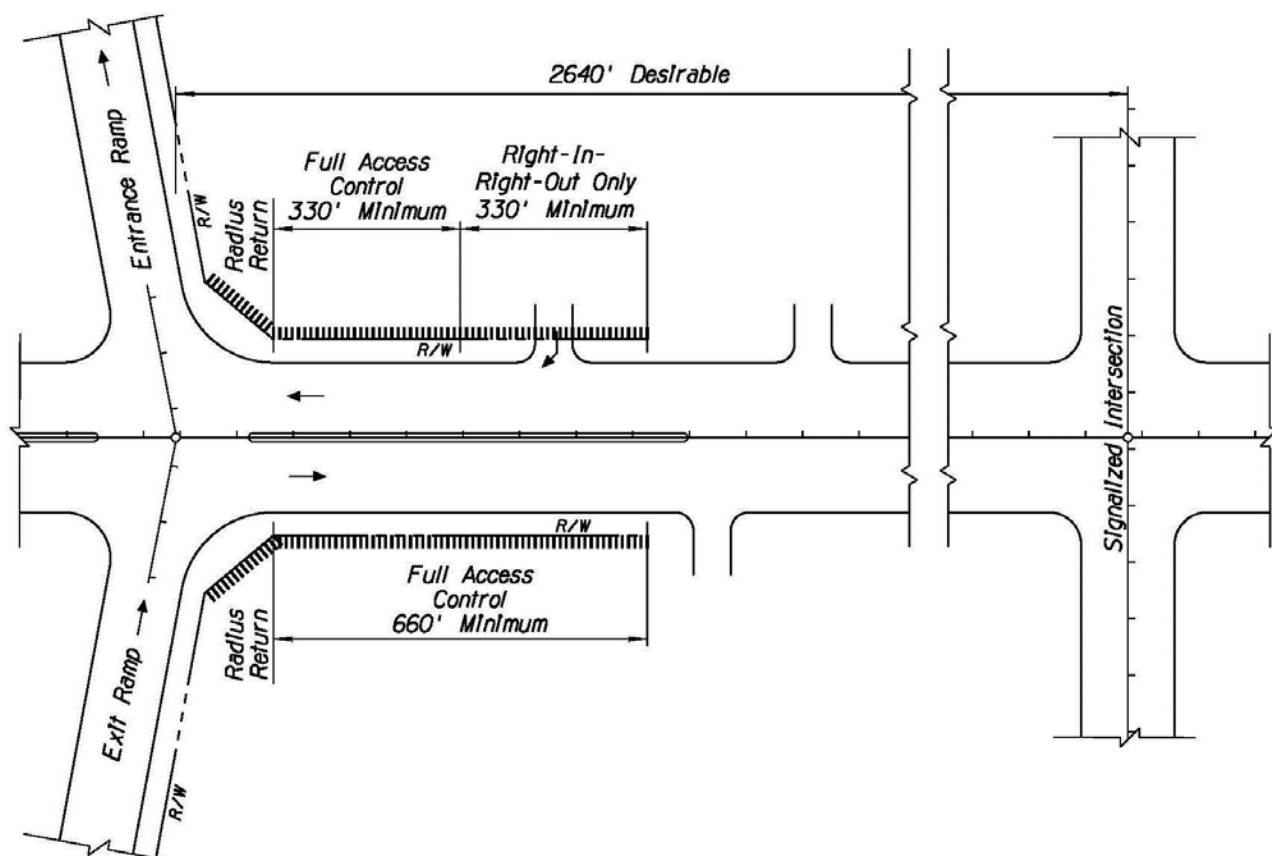
In urban areas with existing development, it may sometimes be difficult to obtain minimum access control distance along the crossroad. Right-of-way acquisition for the access control must be considered and evaluated based upon land ownership and existing access. The designer should work closely with the Right-of-Way Group to determine the practicality of obtaining the minimum access control. If the minimum is not practical to obtain, as much distance as practical should be obtained, however, an absolute minimum of 100 ft should be obtained and any access provided within the remaining distance to 660 ft should be accessed only by right-in / right-out traffic.

When frontage roads join the ramps at an interchange with a crossroad, the access control shall be broken across the frontage road from the back of the ramp paved gore to the outside of the frontage road. The control of access shall continue along the outside of combined ramp and frontage road to the intersection with the crossroad and extend along the crossroad as described above. (See [Figure 506B.](#))

Pre-existing access to a frontage road from abutting property may remain except within 100 ft of the intersection curb (or pavement) return or within 100 ft of a point opposite the ramp/frontage road gore nose when not feasible to obtain access rights. The impacts of retaining pre-existing property access to a frontage road in the turning lanes at an intersection should be carefully studied in conjunction with the Traffic Engineering Group and the Right-of-Way Group. The acquisition of access rights may be required in some cases.

Access control lines are shown on the roadway plans.

Access control dimensions and actual location are shown on the right-of-way plans.



LEGEND
Access Control, Typical

ACCESS CONTROL AT
RAMP / CROSSROAD

FIGURE 506A