



Silverbell Road

GRANT ROAD TO INA ROAD
DESIGN CONCEPT STUDY

Citizens Task Force Meeting
December 2, 2009



KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Traffic Report

› Roadway Capacity Requirements

- Must provide Level of Service D operations
 - 2-Lane Capacity at LOS D: 17,000 vpd
 - 4-Lane Capacity at LOS D: 34,500 vpd

<u>Segment</u>	<u>Existing</u>	<u>2040</u>
North of Ina	9,800	24,000
Ina to Sunset	7,500	22,100
Sunset to del Cerro	10,100	22,900
del Cerro to Goret	11,500	20,700
Goret to Grant	16,800	28,400
South of Grant	21,200	24,800

Traffic Report

➤ Recommended Roadway Cross Section

- 4 travel lanes
- 20' median (raised)
- Bicycle lanes (5' min.)
- Continuous 10' multiuse path on east side; sidewalk both sides from Goret to Grant

➤ Recommended Speed

	Ina to Goret	Goret to Grant
Design Speed	50 mph	45 mph
Posted Speed Limit	45 mph	40 mph



Traffic Report

› Intersections

- Exclusive left and **right-turn lanes** at signalized intersections
- No right-turn lanes at side streets/driveways (CC Park exception)
- Traffic signal at Sunset Road will be warranted in the future
- No other signals are currently warranted. Evaluate HAWK at Introspect



Traffic Report

› Access

- Median openings at nearly all side streets and major driveways
- Provide median openings at frequent spacing for U-turns.
- Provide equestrian paths to signals to maintain access to Santa Cruz River

› Roadway Lighting

- Consider continuous lighting from Goret to Grant
- Intersection lighting at signals



Roadway Cross Sections

› Median

- 20 ft wide
 - Needed for U-turns and left-turn staging
- Curbed vs uncurbed options
 - Marana requires curbed median
 - Both allow water harvesting



Roadway Cross Sections

- Curbed median
 - Improved delineation, especially at night
 - Better access control (cut-throughs)
 - Reduced chance of cross over crashes
 - Allows for larger trees and shrubs in median
 - Improved long-term landscape appearance
 - Lower maintenance costs (sign knockdowns, damage to drainage inlets, damage to landscape, weeds)
 - Urban/suburban feel



Roadway Cross Sections

- › Curbed median (River Road)



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Roadway Cross Sections

- Uncurbed median
 - Slightly lower construction cost
 - More rural feel



Roadway Cross Sections

- › Uncurbed Median (River Road)



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Roadway Cross Sections

› Travel Way

- Standard travel lanes
 - 12 ft lane outside; 13-14 ft lane inside
- Recommended travel lanes
 - 11 ft lane outside; 12 ft lane inside
 - Moderate volumes and few trucks
- Bike lanes
 - Curbed
 - COT: 5 ft pavement (no gutter)
 - PCDOT and Marana: 5 ft pavement (gutter, reduce to 1 ft)
 - Uncurbed – 6 ft pavement



Roadway Cross Sections

› Shoulders

- Curbed
 - Improved delineation
 - Provides access control
 - Improved long-term landscape appearance
 - Lower maintenance costs (sign knockdowns, damage to drainage inlets, damage to landscape, weeds)
 - Reduces right-of-way required
 - Reduces length of drainage culverts
 - Improved pedestrian safety
 - Urban/suburban feel



Roadway Cross Sections

- › Curbed shoulders – La Canada Drive



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Roadway Cross Sections

- Uncurbed
 - Rural feel
 - Preferred by cyclists
 - Requires wider buffer between roadway and ped path
 - Requires wider right-of-way
 - Pavement drainage carried in shoulder channels
 - **Possibly** lower construction cost



Roadway Cross Sections

- › Uncurbed shoulders – Tangerine Road



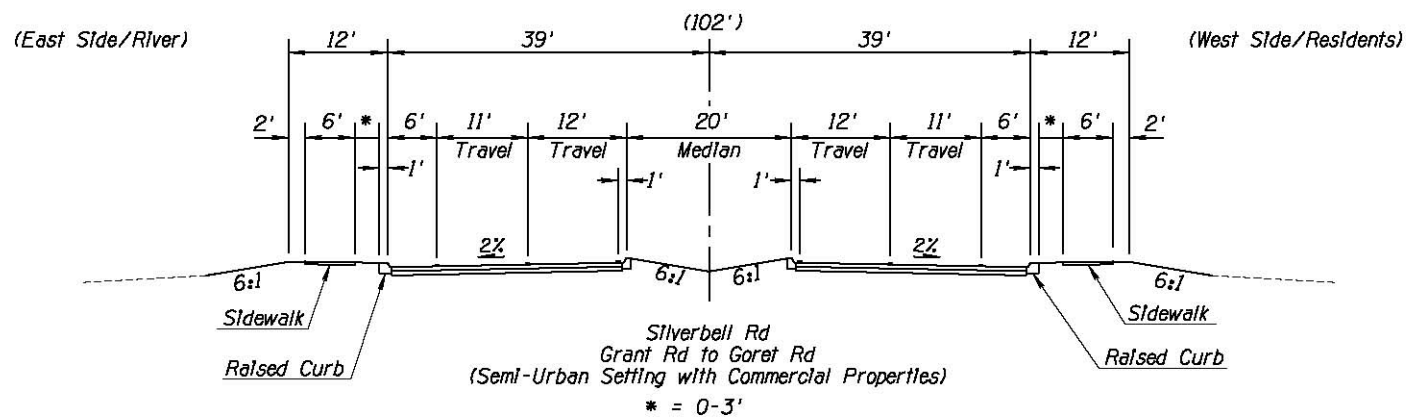
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Roadway Cross Sections

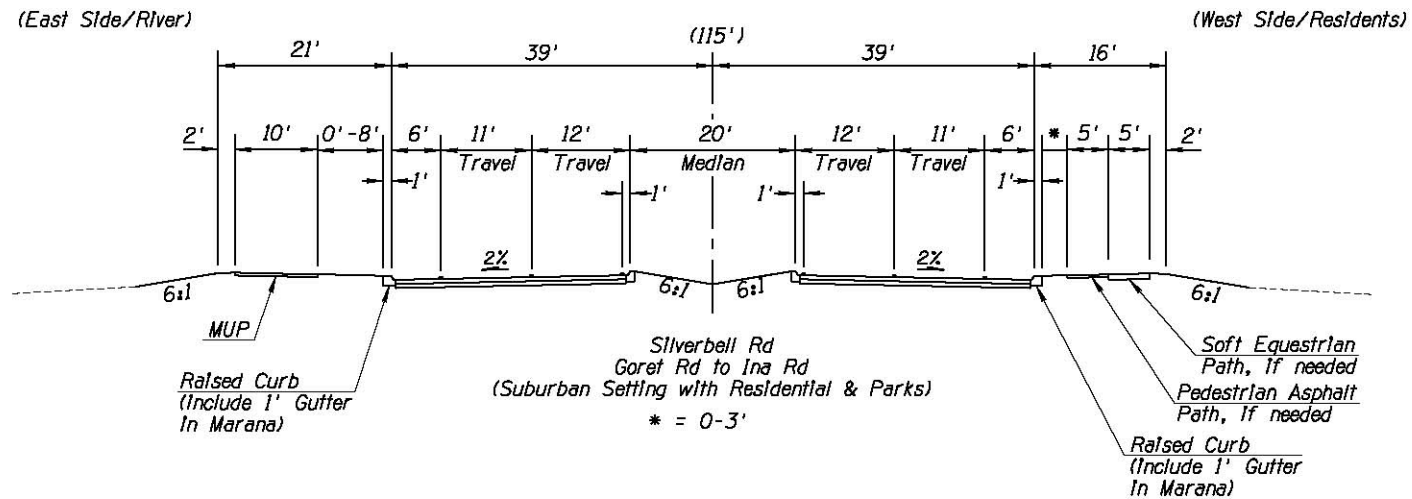
- › Uncurbed shoulders – Tangerine Road



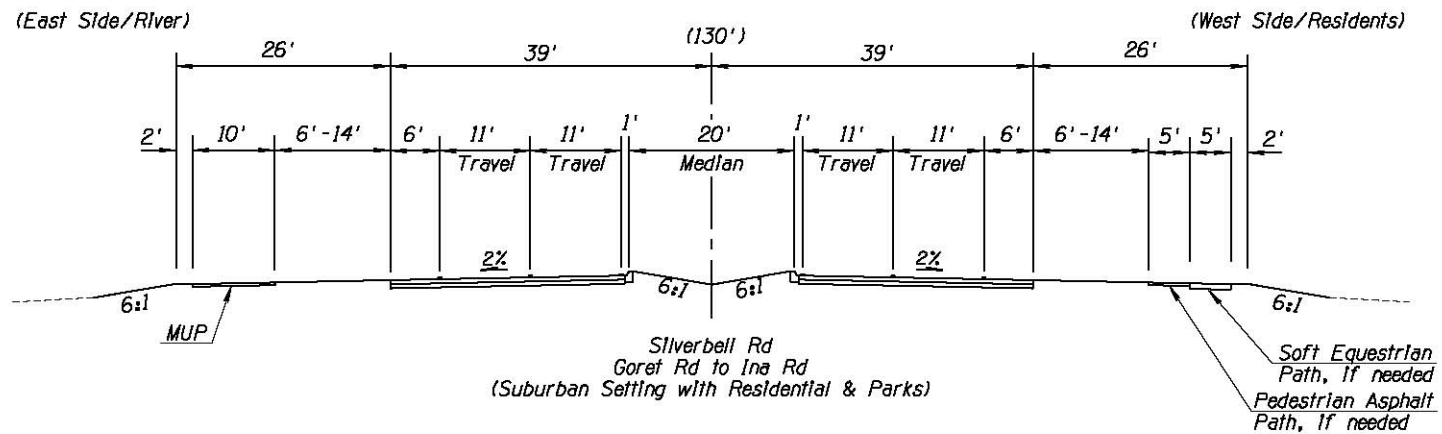
Alternative Cross Sections



Alternative Cross Sections



Alternative Cross Sections



Roadway Alignment

➤ Alignment Criteria

- COT, PCDOT, Marana design standards
- Avoid impacts to floodway
- Minimize private property right-of-way impacts
- Minimize impacts to slopes on west side
 - Less retaining walls
- Minimize floodplain impacts
- Minimize wash reconstruction
- Avoid archeological sites



Upcoming Items

- › Roadway alignment options
- › Intersections
- › Floodplain
- › Drainage

