Volcano Heights
Sector Development Plan

RAC Meeting #2
May 29, 2013
Agenda

1: Intersection Spacing Constraints
2: Spacing Schemes & Analysis
   - Vehicular Traffic Analysis
   - Pedestrian Analysis
3: Conclusions: Justification for Access Request
Changes to Access Modification Request:

Intersection Spacing Constraints

- Prior planning efforts
- Checkerboard ownership
- Irregular parcels
- Limited access roads at 45 degree angles to property lines
- Some parcels without 20-foot access easement along Paseo (City purchases)
- City-owned Unser vs. State-owned Paseo
Constraint 1:
Volcano Mesa Transportation Network
Changes to Access Modification Request:
Intersection Spacing Constraints

- Prior planning efforts
- Checkerboard ownership
- Irregular parcels
- Limited access roads at 45 degree angles to property lines
- Some parcels without 20-foot access easement along Paseo (City purchases)
- City-owned Unser vs. State-owned Paseo
Constraint 2: Checkerboard Ownership

- 570 acres
- ~5-acre lots
- 34 owners
- 99 properties
- 5 owners = 413 acres

![Checkerboard Ownership Diagram]

- Owners 20+ acres
- Owners 10-20 acres
- Owners 5-10 acres
- Owners <5 acres

Legend:
- 259 Acres
- 69 Acres
- 45 Acres
- 20 Acres
- 20 Acres
- 5-12 Acres
- <5 Acres
Changes to Access Modification Request:
Intersection Spacing Constraints

- Prior planning efforts
- Checkerboard ownership
- Irregular parcels
- Limited access roads at 45 degree angles to property lines
- Some parcels without 20-foot access easement along Paseo (City purchases)
- City-owned Unser vs. State-owned Paseo
Constraint 3: Irregular Parcels
Changes to Access Modification Request:
Intersection Spacing Constraints

- Prior planning efforts
- Checkerboard ownership
- Irregular parcels
- Limited access roads at 45 degree angles to property lines
- Some parcels without 20-foot access easement along Paseo (City purchases)
- City-owned Unser vs. State-owned Paseo
Constraint 4:
Limited access roads at 45 degree angles to property lines
Changes to Access Modification Request:
Intersection Spacing Constraints

- Prior planning efforts
- Checkerboard ownership
- Irregular parcels
- Limited access roads at 45 degree angles to property lines
- Some parcels without 20-foot access easement along Paseo (City purchases)
- City-owned Unser vs. State-owned Paseo
Constraint 5: Parcel without 20-foot access easement
Changes to Access Modification Request:
Intersection Spacing Constraints

- Prior planning efforts
- Checkerboard ownership
- Irregular parcels
- Limited access roads at 45 degree angles to property lines
- Some parcels without 20-foot access easement along Paseo (City purchases)
- City-owned Unser vs. State-owned Paseo
Constraint 6:
City-owned Unser vs. State-owned Paseo
Changes to Access Modification Request: City Decision Rules

- Best spacing to coordinate land use and transportation
- Best spacing to support job creation and economic development goals
- Best spacing to support multi-modal transportation and transit-supportive land uses
- Best spacing to provide access to all properties within Volcano Heights
- Best spacing to provide best traffic outcomes for both regional and local trips
Access Schemes: New Intersections

Scheme A: Volcano Heights Sector Development Plan & Volcano Mesa WSSP Amendment

Scheme C: Official City Request
Access Schemes: (cont’d)

Per Limited-access Policies

Intersections Recognized by FAABS

Scheme B: Allowed by Policy
### FAABS – Roadway Access 2012

#### Unser Boulevard

| 4. Dellyne Avenue to Paradise Boulevard | 1) Montano Road  
2) Santo Domingo Street (T-intersection to the east)  
3) 81st Street (T-intersection to the west)  
4) Compass Drive  
5) Squaw Road  
6) Paseo del Norte  
7) A point approximately halfway between Paseo del Norte and Lilienthal  
8) Lilienthal  
9) Paradise Boulevard |
|---------------------------------------|--------------------------------------------------|

| b. Partial access intersections shall be provided at the specified locations: | 1) Fior del Sol Place (right in/right out)  
2) Buglio Avenue (right in/right out/left in) **R-07-02 TCC**  
3) Bogart Street (right in/right out) |
# Paseo del Norte (NM 423)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TYPE A:</strong></td>
<td>Interchange configuration</td>
</tr>
<tr>
<td></td>
<td>1. Coors Boulevard</td>
</tr>
<tr>
<td></td>
<td>2. I-25</td>
</tr>
<tr>
<td></td>
<td>3. 2nd Street</td>
</tr>
<tr>
<td><strong>TYPE B: At-grade dedicated street intersection with median opening</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Paseo del Volcan</td>
</tr>
<tr>
<td></td>
<td>2. Boulevard del Oeste, extended</td>
</tr>
<tr>
<td></td>
<td>3. Woodmont Avenue-Ventana Parkway <strong>R-06-01 TCC</strong></td>
</tr>
<tr>
<td></td>
<td>4. Rainbow Boulevard</td>
</tr>
<tr>
<td></td>
<td>5. Universe Boulevard</td>
</tr>
<tr>
<td></td>
<td>6. Unser Boulevard</td>
</tr>
<tr>
<td></td>
<td>7. Kimmick Drive</td>
</tr>
<tr>
<td></td>
<td>8. Taylor Ranch Corridor (T-intersection to the south)</td>
</tr>
<tr>
<td></td>
<td>9. Golf Course Road</td>
</tr>
<tr>
<td></td>
<td>10. Unnamed Collector midway between Eagle Ranch Road and Golf Course Road</td>
</tr>
<tr>
<td></td>
<td>11. Eagle Ranch Road</td>
</tr>
<tr>
<td></td>
<td>12. Jefferson Street</td>
</tr>
<tr>
<td></td>
<td>13. San Pedro Drive</td>
</tr>
<tr>
<td></td>
<td>14. Louisiana Boulevard</td>
</tr>
<tr>
<td></td>
<td>15. Wyoming Boulevard</td>
</tr>
<tr>
<td></td>
<td>16. Mid block between Wyoming &amp; Barstow (right in/right out) <strong>R-05-13 MTB</strong></td>
</tr>
<tr>
<td></td>
<td>17. Barstow Street</td>
</tr>
<tr>
<td></td>
<td>18. Ventura Street</td>
</tr>
<tr>
<td></td>
<td>19. Hollbrook Street</td>
</tr>
<tr>
<td></td>
<td>20. Eubank Boulevard</td>
</tr>
<tr>
<td></td>
<td>21. Browning Street</td>
</tr>
<tr>
<td></td>
<td>22. Lowell Street</td>
</tr>
<tr>
<td></td>
<td>23. Tramway Blvd</td>
</tr>
<tr>
<td><strong>TYPE C: At-grade dedicated street intersection without median opening</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Rancho de Palomas (south side of Paseo del Norte between Wyoming and Louisiana)</td>
</tr>
<tr>
<td></td>
<td>2. Between I-25 and San Pedro Boulevard, to serve the south side parcel to and from Paseo del Norte</td>
</tr>
</tbody>
</table>

A potential future freeway type facility from Coors Boulevard to Louisiana Boulevard, Paseo del Norte shall be a limited access Principal Arterial. Access to Paseo del Norte shall be permitted only as specified by resolution of the MTB and shall be limited to one of the following three types of interchange intersections. These three types are defined and locations of access are specified below.

TYPE A: Interchange configuration

TYPE B: At-grade dedicated street intersection with median opening

TYPE C: At-grade dedicated street intersection without median opening

Additional Type B intersections may be permitted if they subsequently are added to the Long Range Roadway System and meet the approximate one-half mile interval criteria.
Access Schemes: (cont’d)

Scheme A with Zoning
## Scheme Spacing Comparisons:
Paseo del Norte Intersections

<table>
<thead>
<tr>
<th>Proposed Intersections</th>
<th>Scheme A - VHSDP</th>
<th>Scheme B - Policy</th>
<th>Scheme C - Compromise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paseo/Universe to Loop Road #1</td>
<td>1550</td>
<td>1550</td>
<td>1550</td>
</tr>
<tr>
<td>Loop Road #1 to Paseo/Unser</td>
<td>1518</td>
<td>1518</td>
<td>1518</td>
</tr>
<tr>
<td>Paseo/Unser to Loop Road #3</td>
<td>1186</td>
<td>1500</td>
<td>1410</td>
</tr>
</tbody>
</table>
| Loop Road #3 to Paseo #5                   | 1507             | 1500              | To 5N: 1285
To 5S: 2006 |
| Paseo #5 to Kimmick                         | 1819             | 1500              | From 5N: 1816
From 5S: 1095 |
| Kimmick to Park Edge Road                  | 1712             | 1712              | 1712                  |
# Scheme Spacing Comparisons: Unser Blvd. Intersections

<table>
<thead>
<tr>
<th>Proposed Intersections</th>
<th>Scheme A - VHSDP</th>
<th>Scheme B - Policy</th>
<th>Scheme C - Compromise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compass to Kimmick</td>
<td>1564</td>
<td>1564</td>
<td>1564</td>
</tr>
<tr>
<td>Kimmick to Rosa Parks (formerly Squaw)</td>
<td>1413</td>
<td>1413</td>
<td>1413</td>
</tr>
<tr>
<td>Rosa Parks to Avenida de Jaimito</td>
<td>2130</td>
<td>2130</td>
<td>2130</td>
</tr>
<tr>
<td>Avenida de Jaimito to Loop #4</td>
<td>661</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loop #4 to Paseo/Unser</td>
<td>1027</td>
<td>1699</td>
<td>1699</td>
</tr>
<tr>
<td>Paseo/Unser to Loop #2</td>
<td>1105</td>
<td>1390</td>
<td>1390</td>
</tr>
<tr>
<td>Loop #2 to Transit Blvd.</td>
<td>1284</td>
<td>980</td>
<td>1330</td>
</tr>
<tr>
<td>Transit Blvd. to Park Edge #6</td>
<td>814</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Park Edge #6 to Blue Feather (formerly Lilenthal)</td>
<td>1505</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Transit Blvd. to Blue Feather</td>
<td>N/A</td>
<td>2370</td>
<td>1989</td>
</tr>
<tr>
<td>Blue Feather to Buglo Ave.</td>
<td>1413</td>
<td>1413</td>
<td>1413</td>
</tr>
<tr>
<td>Buglo Ave. to Paradise Blvd.</td>
<td>1212</td>
<td>1212</td>
<td>1212</td>
</tr>
</tbody>
</table>
## Vehicular Traffic Study: Travel Speeds

**Travel Speed Comparison**

(through Volcano Heights)

PM Peak Hour (Year 2035 Volumes)

<table>
<thead>
<tr>
<th></th>
<th>Scheme B</th>
<th>Scheme A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paseo del Norte</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastbound</td>
<td>25 mph</td>
<td>24 mph</td>
</tr>
<tr>
<td>Westbound</td>
<td>21 mph</td>
<td>22 mph</td>
</tr>
<tr>
<td>Overall</td>
<td>22 mph</td>
<td>23 mph</td>
</tr>
<tr>
<td><strong>Unser</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northbound</td>
<td>22 mph</td>
<td>17 mph</td>
</tr>
<tr>
<td>Southbound</td>
<td>20 mph</td>
<td>17 mph</td>
</tr>
<tr>
<td>Overall</td>
<td>21 mph</td>
<td>17 mph</td>
</tr>
</tbody>
</table>
### Vehicular Traffic Study:

#### Travel Delay & Level of Service

**Year 2035**

**Intersection Level of Service - DRAFT**

**PM Peak Hour**

<table>
<thead>
<tr>
<th>Scheme A</th>
<th>Scheme B</th>
<th>Scheme C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Service (LOS)</td>
<td>Avg. Delay (seconds)</td>
<td>Level of Service (LOS)</td>
</tr>
</tbody>
</table>

**Paseo del Norte**

- **Universe**
  - Scheme A: C
  - Average Delay: 29 seconds
  - Scheme B: C
  - Average Delay: 26 seconds

- **#1 Loop Rd -- WEST**
  - (proposed – 1518’ west of Unser)
  - Level of Service: D
  - Average Delay: 44 seconds

- **Unser**
  - Level of Service: E
  - Average Delay: 78 seconds

- **Transit Blvd**
  - (proposed – 1410’ east of Unser)
  - Level of Service: E
  - Average Delay: 74 seconds

- **Kimmick Rd**
  - Level of Service: E
  - Average Delay: 74 seconds

**Unser Boulevard**

- **#4 Loop Road – South Intersection**
  - (proposed 1699’ south of Paseo del Norte)
  - Level of Service: N/A
  - Average Delay: 29 seconds

- **Paseo del Norte**
  - Level of Service: E
  - Average Delay: 78 seconds

- **#2 Loop Road – North Intersection**
  - (proposed 1390’ north of Unser)
  - Level of Service: N/A
  - Average Delay: 40 seconds

- **Transit Blvd.**
  - Level of Service: D
  - Average Delay: 40 seconds

- **#2 Loop Road – North Intersection**
  - (proposed 1390’ north of Unser)
  - Level of Service: D
  - Average Delay: 40 seconds
Vehicular Traffic Study:

Analysis Summary

- Travel speed on Paseo improves (!) by 1 mph, due to dispersal of turning movements to multiple locations.
- Individual intersections also operate better with dispersal (eliminates failing LOS E at several locations).
- As shown: Unser travel time degrades.
Pedestrian Analysis:
Scenario 1: Single Bus Rapid Transit Stop

<table>
<thead>
<tr>
<th>TABLE 1: Single Bus Rapid Transit Stop Scenario</th>
<th>Scheme A</th>
<th>Scheme B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total accessible acres in a 1/2 mile walk or less</td>
<td>75.6</td>
<td>55.7</td>
</tr>
<tr>
<td>Total acres accessible in Town Center</td>
<td>50.8</td>
<td>37.1</td>
</tr>
<tr>
<td>Percent of Town Center Accessible</td>
<td>75%</td>
<td>55%</td>
</tr>
</tbody>
</table>
Pedestrian Analysis:
Scenario 2: Two Bus Rapid Transit Stops

<table>
<thead>
<tr>
<th>TABLE 1: Single Bus Rapid Transit Stop Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Total accessible acres in 1/2 mile walk or less</td>
</tr>
<tr>
<td>Total acres accessible in Town Center</td>
</tr>
<tr>
<td>Percent of Town Center Accessible</td>
</tr>
</tbody>
</table>
Pedestrian Analysis:
Scenario 3: Ped Access fr. West of Paseo/Unser
Justification for Access Request: Benefits Outweigh the Costs

- Backbone Grid to disperse traffic, offer redundancy
- Loop road to alleviate pressure on Paseo/Unser intersection
- Predictable access for local development (no more curb cut requests!)
- Local roads to serve local development
- Access that supports Major Activity Center

Sample: Local Roads

Backbone Grid
Chapter 4  E. ACCESS CATEGORY: Urban Principal Arterial (UPA)

(1) Functional Description: The urban principal arterial system serves the major centers of activity of urbanized areas, the highest traffic volume corridors, the longest trip desires, and carries a high proportion of the total urban area travel on a minimum of mileage. The system is integrated both internally and between major rural connections. The principal arterial system carries most of the trips entering and leaving an urban area, as well as most of the through movements bypassing central city areas. In addition, significant intra-area travel, such as between central business districts and outlying residential areas, between major inner city communities, and between major suburban centers, is served by this class of highway. In urbanized areas, this system provides continuity for all rural arterials that intercept the urban boundary.

(2) General Access Characteristics: The primary functional responsibility of urban principal arterials is through traffic movement. Many urban principal arterials are fully or partially access controlled. Direct access service to abutting properties is subordinate to providing service to through traffic movements. Access location and spacing standards are strictly enforced.

(3) Performance: The operational performance of UPA facilities should meet LOS D standards at a minimum. See Sub-Section 15.C, Table 15.C-1.

Specifically exempts "business districts" from spacing requirements.

18.31.6.7 Business District-- A business district occurs along a highway when within 300 feet along such highway there are buildings in use for business or industrial purposes (including but not limited to hotels, banks or office buildings, railroad stations and public buildings) which occupy at least fifty percent of the frontage on one side or fifty percent of the frontage collectively on both sides of the highway (page 2).

18.31.6.18 C (3) Business Districts. The spacing of access points within business districts on urban or rural highways may be adjusted based on site-specific conditions consistent with the requirements for the access category of the highway (page 23).

Justification for Access Request:
Access Management Guidelines for Activity Centers (1992)

- Signalized spacing (pg. 4):
  - The spacing guidelines should minimize the need for variances or exceptions, while simultaneously protecting arterial traffic flow. They should view driveways to major activity centers as intersecting arterial roads rather than as curb cuts.
  - To assure efficient traffic flow, new signals should be limited to locations where the progressive movement of traffic will not be impeded significantly. The “optimum” distance between signals - where there is no loss in the through band width - depends on the cycle length and the prevailing speed. When signals are placed at other locations, there is a loss in band width and delay increases.

- Unsignalized spacing (pg. 5):
  - *Strict application of traffic engineering criteria may push spacing requirements to 500 ft or more.* However, such spacings may be unacceptable for land use and perceived economic reasons in many suburban and urban environments where *development pressures opt for 100- to 200-ft spacing.* Spacing guidelines should achieve a reasonable balance between these conflicting requirements.
Next Steps:

Timelines

- **Volcano Heights Sector Development Plan**
  - June 3, 2013: City Council

- **Paseo del Norte High-Capacity Transit Study**
  - Summer 2013

- **Access Request**
  - TCC June 7, 2012 (and July 12, 2013?)
  - MTB June 21, 2013 or July 19, 2013
Volcano Heights Sector Development Plan
City Project Team

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City’s Project Webpage: