T.E.D.S. DESIGN EXCEPTION REQUEST

RIVERVIEW ESTATES SUBDIVISION
280 29 Road
Grand Junction, CO

March 2, 2006

Proposed Design Exception:

This is a request to allow installation of an access roadway (Riverwalk Lane - a proposed Urban Residential Street) creating a T-intersection with 29 Road (a designated Principal Arterial). This installation would be out of compliance with Section 6.2.8.1 of the TEDS manual given that the offset centerline spacing with existing Unaweep Avenue would be approximately 512 feet. TEDS Section 6.2.8.1 (enclosed in the appendix) indicates a desired minimum of 600 feet.

Given Data:

Riverwalk Lane (proposed) - Urban Residential Street
29 Road (existing) - Principal Arterial, Speed Limit = 35 mph (current and future - Per Mesa County Traffic Department)

Alternatives Considered:

1. **No intersection with 29 Road and Riverwalk Lane:** This is not an option at this time as the property has no other street frontage for ingress/egress.

2. **Provide only a temporary access to 29 Road until such time as another interconnection is available (probably to the south to B ½ Road):** This option relies on development of offsite properties to the south which are obviously not controlled by this development. Timing for offsite improvements would be completely unknown with no assurance of ever reaching completion. Future closure of an existing roadway could create safety concerns and traffic hazards with drivers habitually turning into the closed entrance. If the intersection was partially closed (bollards or similar devices) to allow emergency vehicles continued access, it may be difficult to indicate this to habitual drivers. Other non-emergency vehicles may continue to attempt access (motorcycles, heavy trucks, etc.). City staff has indicated they feel bollards are unattractive. If a "full-closure" was performed, it would probably dictate removal of the proposed v-pan and fillets in favor of reinstalled vertical curb and gutter. This would create drainage issues for stormwater runoff currently proposed to surface-flow west along Riverwalk Lane to 29 Road and direct-discharge to the river. Closure also creates issues to be resolved concerning abandonment of right-of-way which may contain utilities generally preferring right-of-way versus easements. Full closure would also preclude future use and access of a valuable intersection by emergency vehicles.

3. **Move access north, 600' from Unaweep:** Due to the steep vertical grade of 29 Road, dropping toward the river, this would create an intersection with a deeper cut to match with the

29 Road profile. Sight distance has been verified to comply with standards at the proposed location (see appendix), but may not be in compliance closer to the river, farther over the crest of the existing vertical curve in 29 Road. In addition, the existing retaining wall along the east side of 29 Road would be compromised more than the current proposal (current modification involves less than 3 vertical-feet of wall, near the existing end-of-wall). The current alignment proposal fits with an efficient double-loaded entrance road for the project, splitting the entrance parcel in two equal parts. Owners to the north, the George Decker property, have been advised that they will not be allowed to access 29 Road from their parcel in future land-use applications. They will require access through the proposed Riverview project (this access is proposed in two private drives extended to Decker - per recommendations from City engineering staff).

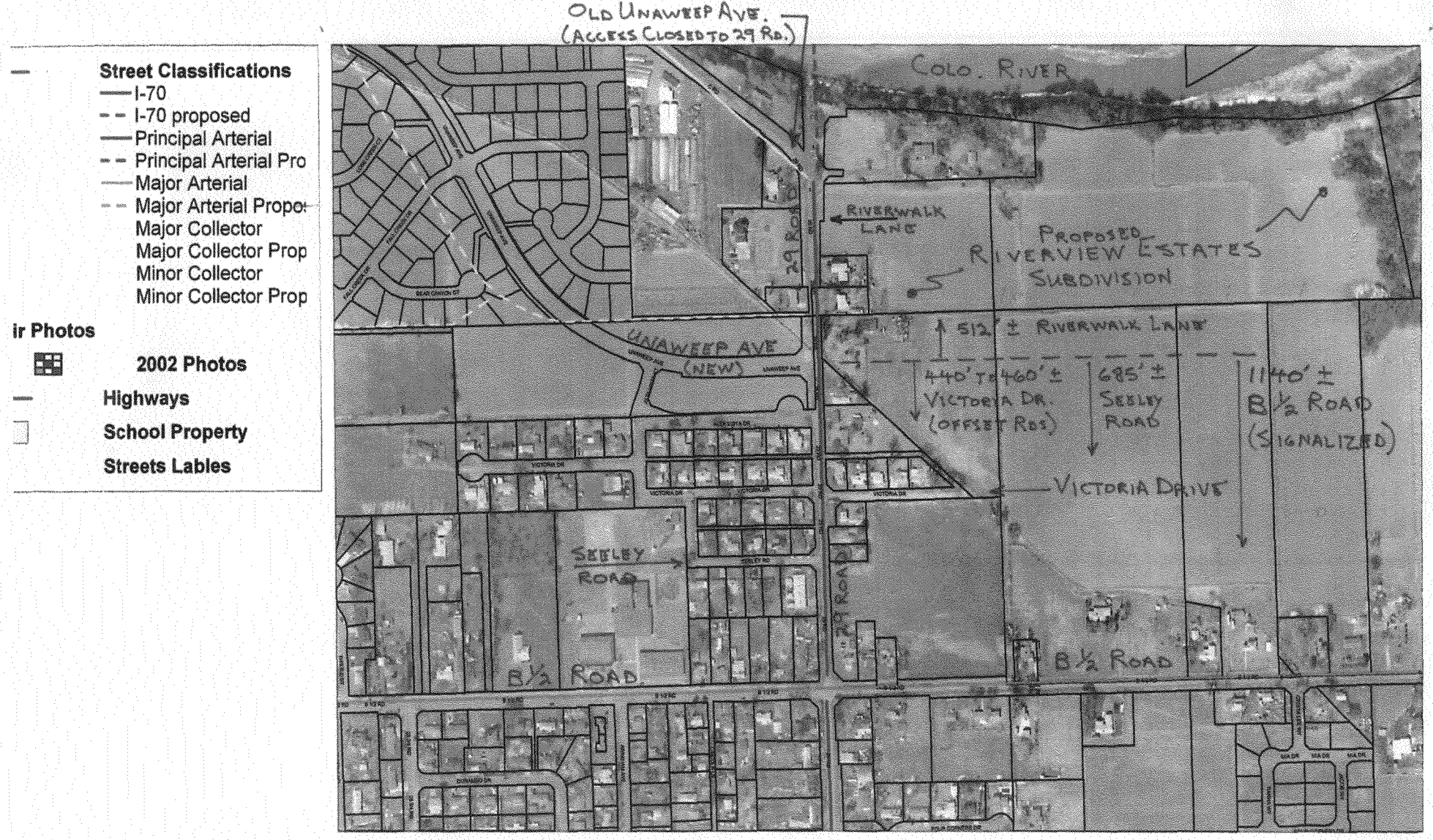
Impacts of Change:

The impacts of this proposed change do not appear to be adverse. No other T-intersections appear viable for 29 Road north of Unaweep Avenue. Undeveloped lands on the east-side of 29 Road appear to have inter-connectivity to "old" and "new" Unaweep Avenues and to local streets stubbed from recent developments to the west (see enclosed vicinity map). The proposed alignment works well with development of Riverview Subdivision and meets the sight-distance requirements outlined in TEDS for at least a 45 mph roadway (the County says the road is, and will continue to be, posted at 35 mph). Other alternatives discussed could create additional hazards and compromise safety.

Appendix

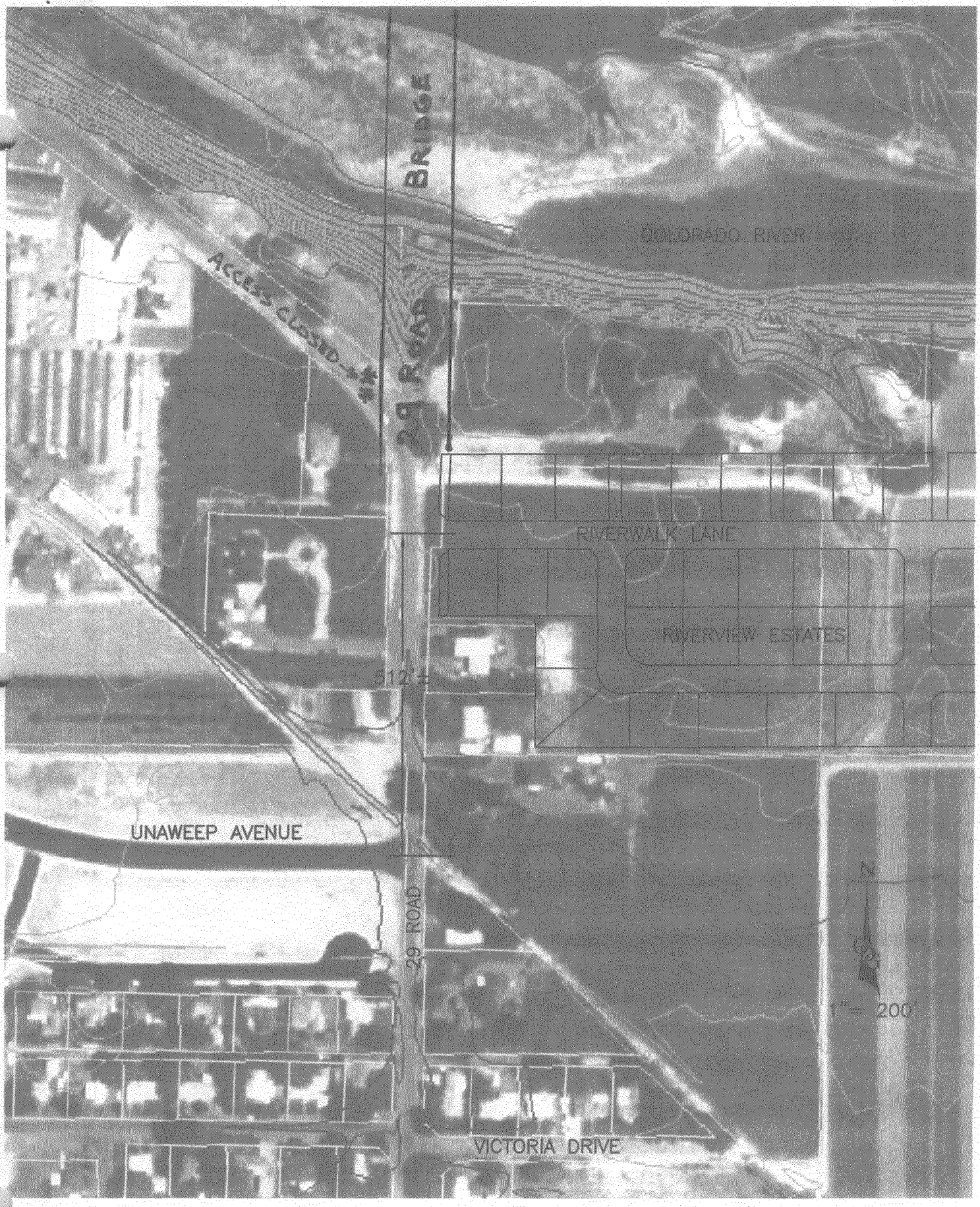
Riverview Estates Subdivision

Riverview Estates & 29 Road Vicinity Map



p://gis-web-fs.ci.grandjct.co.us/maps6/Transportation_Map1.mwf

Thursday, March 02, 2006 11:50 AM



INTERSECTION SPACING

signalized intersections, the maximum grade is 2% within the intersection and extends 200 feet in each direction. Grades above 4% will only be allowed on local and collector streets in areas with steep topography or other unusual circumstances that prevent a flatter grade, and must be documented as a design exception.

6.2.8 Spacing and Offsets

6.2.8.1 Principal Arterials

Signalized intersections shall be spaced at ½ mile intervals. Unsignalized intersections must be T-intersections spaced at least 600 feet apart, measured centerline to centerline. Unsignalized four legged intersections may be allowed on arterial streets provided that the design of the intersection precludes left turns onto and through movements across the arterial. If the overlap of left turn storage requirements for two T-intersections exceeds 600 feet, the minimum spacing must be increased to provide adequate left turn storage in both directions.

6.2.8.2 Minor Arterials and Collectors

Signalized intersections shall be spaced at 1/4 mile intervals. Unsignalized four legged intersections must be spaced at least 300 feet apart. When T-intersections are used, the centerlines of streets not in alignment shall be offset a minimum of 150 feet and be 150 feet from the nearest four legged intersection. If the left turn storage requirements for adjacent intersections overlap, the minimum spacing must be increased to provide adequate left turn storage in both directions.

6.2.9 Pedestrian Treatments

Accommodations for pedestrians shall be designed into all intersections. Pedestrian accommodations include, but are not limited to sidewalks, crosswalks, pedestrian refuge islands, and accommodations for disabled pedestrians. Sidewalks are an integral part of urban streets and shall be included in the intersection design. The City Standard Details shall be followed in designing and constructing pedestrian facilities. The intersection design shall conform to the standards set forth in the Americans with Disabilities Act. More information on the requirements

slopes or where super-elevation is provided and approved, see Exhibit 3-40 in "A Policy on Geometric Design of Highways and Streets," AASHTO, 2001 Edition.

[3] Where a curved road approaches an intersection, these tangent sections must be provided on the approach to the intersection to provide for adequate sight distance for traffic control devices at the intersection.

[4] The maximum super-elevation rate allowed is e=6%. Where super-elevation is used, runoff lengths shall conform to Exhibit 3-41 in "A Policy on Geometric Design of Highways and Streets," AASHTO, 2001 Edition.

6.1.3 Vertical Alignment

6.1.3.1 Grades

Grades, curve length and vertical sight distance shall be designed to ensure proper drainage, sight distance and safety for vehicles and pedestrians. Grades of streets shall not be less than 0.5%. The grade of a street may be reduced only when matching existing streets or property. Maximum street grades shall be 8%. For algebraic differences of 0.5% or less, grade breaks shall be required for adequate drainage.

Design Controls for Vertical Curves

Design Speed MPH	Stopping Sight Distance (feet)	Crest "K" Values	Sag "K" Values
20	115	7	17
25	155	12	26
30	200	19	37
35	250	29	49
40	305	44	64
45	360	61	79
50	425	84	96
55	495	114	115
60	570	151	136

35 MPH = POSTED AND FUTURE SPEED LIMIT →

29 ROAD CREST → K = 119.02

From Exhibits 3-76 and 3-79, AASHTO A Policy on Geometric Design of Highways and Streets, 2001

[1] All minimum stopping sight distances for vertical curves with crests must be shown on the construction plans. Sight distances are based on design speeds

Factors for the Effect of Grade on Sight Distance

Approach Grade (%)	Design Speed (MPH)									
	15	20	25	30	35	40	45	50	55	60
-6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
-5	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
-4	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
-3 to +3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
+4	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
+5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+6	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

Based on Exhibit 9-53, AASHTO, A Policy on Geometric Design for Highways and Streets, 2001.

6.2.3.1 Sight Zones

Within the sight zone there shall be no sight obscuring sign, wall, fence, berming, or other object higher than 30 inches, or in the case of trees, no foliage lower than 8 feet. Vertical measurement shall be made from the flowline of the adjacent gutter or, if no gutter exists, from the edge of the nearest traveled way. Objects that may be located in the sight zones are items such as hydrants, utility poles, and traffic control devices. These shall be located to minimize visual obstruction.

6.2.4 Intersection Radii

Minimum intersection radii must be maintained at public street intersections.

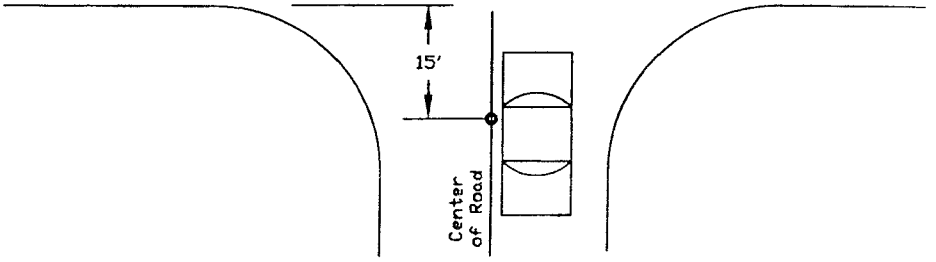
Sight Distance Design Standards

(ref. 'Institute of Transportation Engineers Handbook,' 5th Ed., 1999)

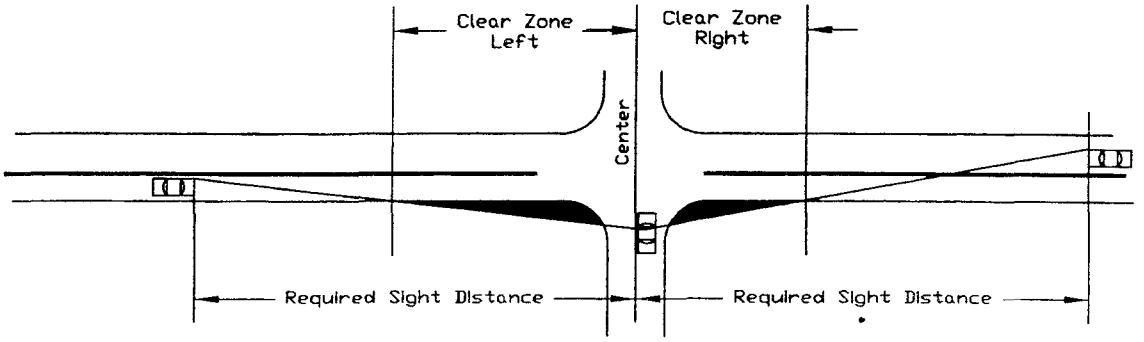
Dark areas represent mandatory Sight Distance clear zones, which vary by posted regulatory speed limit.

Clear zones apply to all driveways and intersections. They are defined by a line between a driver's view point 15' away from the edge of travel lane of the crossing roadway.

Measure from Driver's View Point (15' from the edge of travel lane)



Clear Zone Overview (shaded area is to be clear of sight obstructions from 2.5' to 8' H. above the road). Length varies by posted speed limit.



Cross Street Posted Speed Limit	Required Sight Distance	Clear Zone Length Left	Clear Zone Length Right
20 MPH	200 FT	108 FT	74 FT
25 MPH	275 FT	148 FT	101 FT
30 MPH	350 FT	188 FT	129 FT
35 MPH	425 FT	229 FT	157 FT
40 MPH	500 FT	269 FT	184 FT
45 MPH	575 FT	310 FT	212 FT
50 MPH	650 FT	350 FT	239 FT
55 MPH	725 FT	390 FT	267 FT

POSTED →

AVAILABLE →

N:/Cadd/Traffic/gmiller/design/SiteDist Miller 8-04.dwg

6.1.3.2 Clearance of Structures

A minimum of 17.5 feet shall be provided for all overhead sign structures. The clearance shall be measured from the crown of the street to the lowest portion of the structure. A minimum vertical clearance of 16 feet for all other structures shall be provided on all arterial streets and designated truck routes. A minimum clearance of 14 feet may be allowed on collector streets.

6.1.3.3 Stopping Sight Distance

Stopping sight distance is defined as the length of roadway ahead visible to the driver. The minimum stopping sight distance available on a roadway must be sufficiently long to enable a vehicle traveling at or near the roadway design speed to stop before reaching a stationary object in its path or react to a traffic control device such as a stop sign.

The appropriate stopping sight distance shall be provided. The distances shown assume vehicles traveling on wet pavement on flat grades. Factors that take in to account the effect of grade on stopping sight distance shall be used in determining appropriate stopping sight distance where the grades are 3% or higher.

Minimum Stopping Sight Distance

Design Speed (MPH)	Stopping Sight Distance (Ft.)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570

POSTED SPEED →

AVAILABLE →

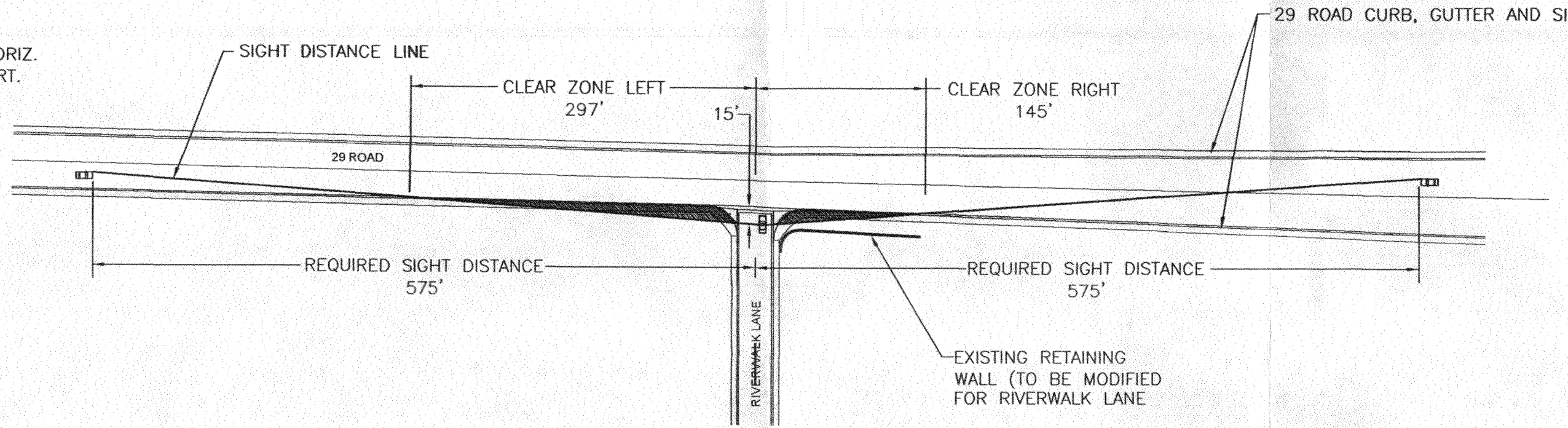
Based on Exhibit 3-1, AASHTO A Policy on Geometric Design of Streets and Highways, 2001

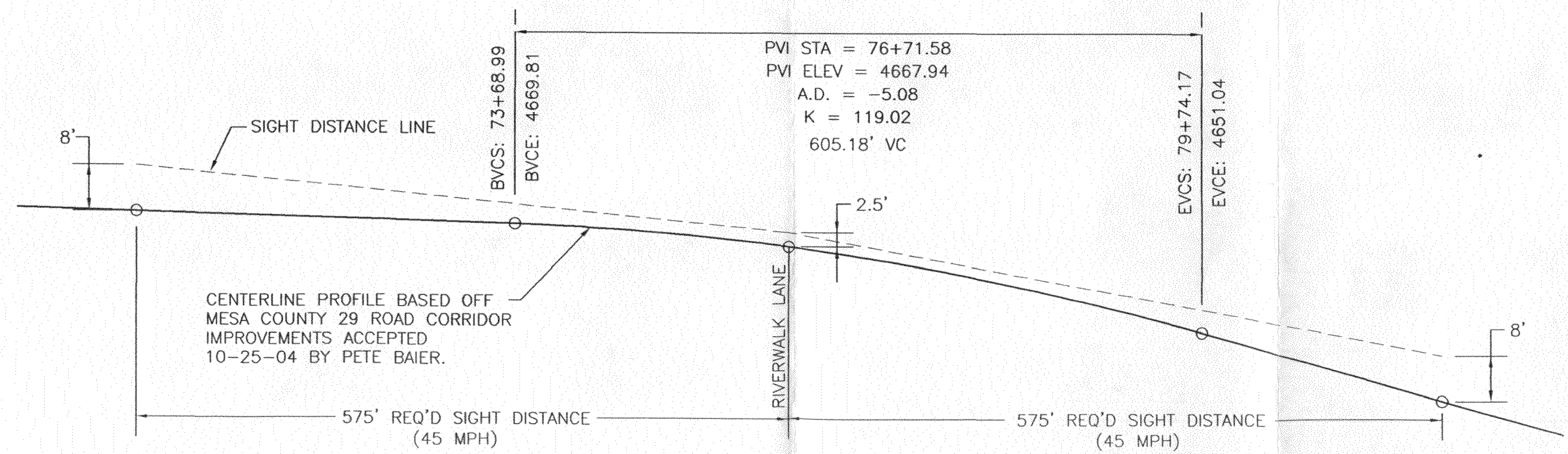
RIVERVIEW ESTATES
SITE DISTANCE REPORT (45 MPH)

N

SCALE:
1"= 100' HORIZ.
1"= 5' VERT.

29 ROAD DESIGNED K VALUE = 119.02, THEREFORE STOPPING SITE DISTANCE = ±500' (55 M.P.H.)





O'Connor Design Group, Inc.

CITY OF
Grand Junction
COLORADO

PUBLIC WORKS
& UTILITIES

Memorandum

COPY

TO: **Jim, Shanks, Riverside Parkway Program Manager**

FROM: **Sandi Nimon, Sr. Administrative Assistant,**
Public Works Administration SN

DATE: **March 1, 2006**

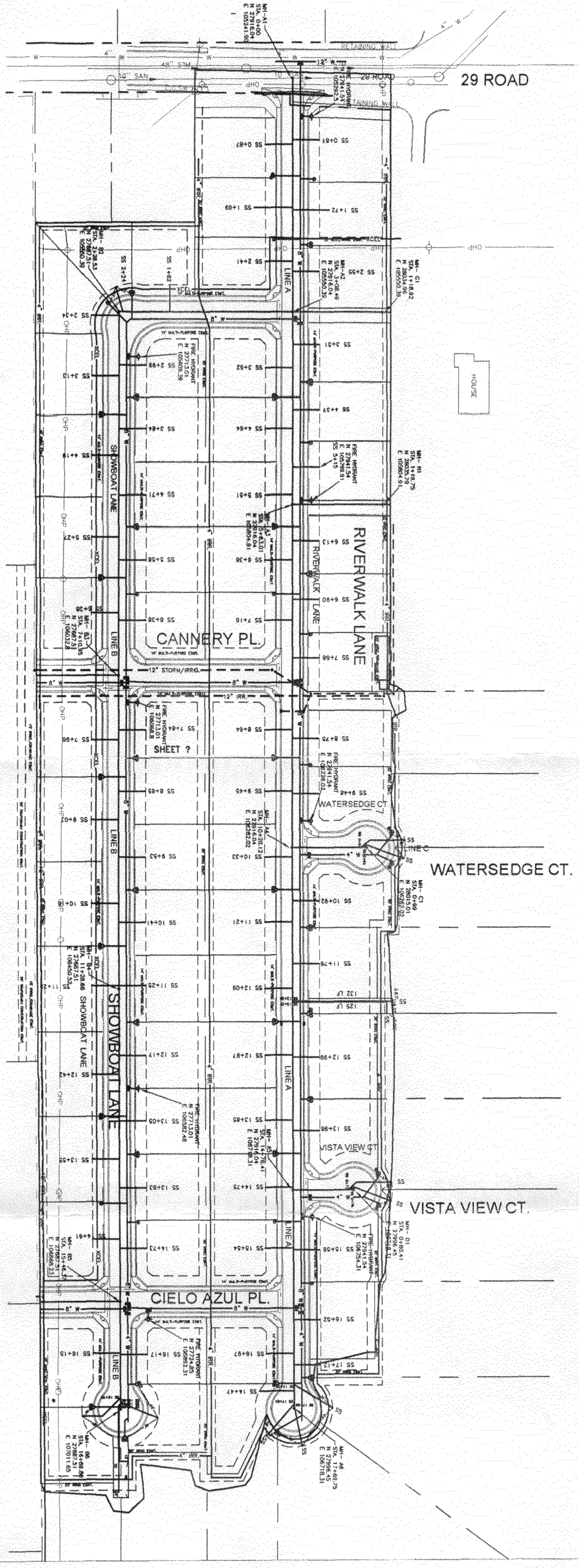
SUBJECT: **Design Exception #DE 7-06 Street Width on 4th Avenue**

Please find attached the committee's decision for the above referenced request. This design exception has been approved, as requested. You may use this decision to proceed through the development review process for this exception.

If you have any questions concerning this decision, please feel free to contact the Development Engineer in charge of your project or Tim Moore, Public Works Manager at (970) 244-1557.

sn

xc: Kent Marsh


29 ROAD
RETAINING WALL
RETAINING WALL
LINE A
HOUSE
RIVERWALK LANE
CANNERY PL.
SHEET ?
WATERSEDGE CT
WATERSEDGE CT.
VISTA VIEW CT
VISTA VIEW CT.
CIELO AZUL PL.
SHOWBOAT LANE
LINE B
LINE C

CITY OF
Grand Junction
COLORADO

PUBLIC WORKS
& UTILITIES

Memorandum

COPY

TO: **Jim, Shanks, Riverside Parkway Program Manager**

FROM: **Sandi Nimon, Sr. Administrative Assistant,**
Public Works Administration SN

DATE: **March 1, 2006**

SUBJECT: **Design Exception #DE 7-06 Street Width on 4th Avenue**

Please find attached the committee's decision for the above referenced request. This design exception has been approved, as requested. You may use this decision to proceed through the development review process for this exception.

If you have any questions concerning this decision, please feel free to contact the Development Engineer in charge of your project or Tim Moore, Public Works Manager at (970) 244-1557.

sn

xc: Kent Marsh

Development Engineering

Memo

To: Tim Moore, Public Works Manager

From: Laura Lamberty

CC: Dave Thornton

Date: March 6, 2006

Re: Riverview Estates: TEDS Exception to 6.2.8.1 Intersection Spacing Principal Arterial

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The applicant proposes a TEDS Exception to permit a permanent local street access to 29 Road south of the Colorado River Bridge currently under construction.

It is anticipated that:

- single family access on the same side would be removed upon future redevelopment of the parcels
- Old Unaweep Avenue/ "C" Road access will be closed with Bridge project.
- Single family access to 29 Road, opposing, will be closed with future redevelopment of the Niesbros/Okagawa Farms parcels, access would come from a local street system developed off of Unaweep (realigned).
- Unaweep Avenue will be extended across 29 Road and signalized to provide primary access to this developing region of Orchard Mesa.
- No new access north of the subject location can be developed for over 1000' due to the proximity of the river.

Stacking and left turn conflicts are not anticipated to create safety issues with the approval of the exception.

Staff recommends approval of this Design Exception

CITY OF
Grand Junction
COLORADO

PUBLIC WORKS
& UTILITIES

March 10, 2006

Pat O'Connor
O'Connor Design Group
2350 G. Road
Grand Junction, CO 81505

Grand Junction, CO 81503

Re: Design Exception #08-06, 280 29 Road; Riverview Estates

Dear Pat:

Please find attached the committee's decision for the above referenced request. This design exception has been approved as requested. You may use this decision to proceed through the development review process for this exception.

If you have any questions concerning this decision, please feel free to contact the Development Engineer in charge of your project or Tim Moore, Public Works Manager at (970) 244-1557.

Sincerely,

Sandi Nimon

Sandi Nimon,
Sr. Administrative Assistant

Xc: Laura Lamberty, Development Engineer (256-4155)

CITY OF Grand Junction COLORADO

PUBLIC WORKS & UTILITIES

DESIGN EXCEPTION # 8-06

To: Mark Relph, Director of Public Works & Utilities
Bob Blanchard, Director of Community Development
Rick Beaty, Fire Chief

From: Tim Moore, Public Works Manager

Copy to: Laura Lamberty

Date: March 8, 2006

RE: 280 29 Road: Riverview Estates

DESCRIPTION OF THE SITUATION

Riverview Estates is a residential subdivision with approximately eighty-one (81) lots on Orchard Mesa adjacent to 29 Road. The applicant desires to vary the tee intersection spacing on the principal arterial (29 Road) for access to the subdivision. Section 6.2.8.1 of the TEDS Manual requires the offset centerline spacing of 600 feet. There is approximately 512 feet between the existing Unaweep Ave. and the proposed Riverwalk Lane. The property has limited frontage to any public street at this time and it is anticipated that Unaweep will extend to the east.

Site Description:
Terrain and the river limit access to the east and north. Stub access to the parcel to the north will be provided to eliminate single family access to 29 Road in the future. Stub street access is provided to the south in two locations.

EXCEPTION CONSIDERATIONS

1. **Will the exception compromise safety?**
   Staff does not believe the exception will compromise safety.

2. **Have other alternatives been considered that would meet the standard?**
   Due to the narrow lot frontage, the applicant's options are limited.

   The applicant has considered "temporary" access to 29 Road at the subject location, but this area is necessary as a utility corridor and future vacation of the corridor is not feasible.

Another option that could be considered would be to slide the road to the north along the common property line.

3. **Has the proposed design been used in other areas?**
   Intersection spacing has been varied frequently on arterials and other streets.

4. **Will the exception require CDOT or FHWA coordination?**
   No

5. **Is this a one-time exception or a manual revision?**
   This would be a one-time exception.

Staff Recommendation

Staff recommends approval of the exception requested.

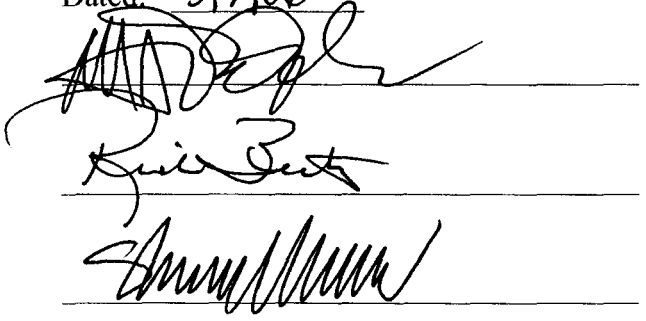
Recommended by: _____

Approved as Requested: ✓

Approved as Modified: ____

Denied _____

Dated: 3/9/06



DE# 6-06 2758 Unaweep Ave. Access Spacing

From: Jody Kliska
To: Eric Hahn; Laura Lamberty; Tim Moore
Date: 3/10/2006 12:08 pm
Subject: Re: TEDS Exceptions

The intent of the 600 foot minimum separation on arterial streets is to provide a balance between the primarily mobility function of the street with the need for access by adjacent properties. The spacing provides for several functions, including right turn conflict overlap between entering vehicles and oncoming vehicles; the influence distance which provides adequate space for entering vehicles not to influence the speed of oncoming traffic; egress capacity; allowing for back to back left turns for access points on opposite sides of the arterial; and keeping the number of access points per mile to a minimum. Based on the topography and property ownership in this area, the 512' meets the intent of the requirement. With the Colorado River to the north, no additional access points will be allowed north of the intersection.

>>> Tim Moore 3/9/2006 4:26 pm >>>
Eric & Laura
The TEDS committee approved your two design exception requests. Laura, the only thing mentioned with the Riverview Estates subd. was that they wanted a memo to the file from Jody that indicates she reviewed it and was AOK with the exception, and how the 512 feet separation meets the intent of the 600 foot requirement (I assume it does). Thanks, Tim