



Planning and Community
Development Department
2880 International Circle
Colorado Springs, Colorado 80910
Phone: 719.520.6300
Fax: 719.520.6695
Website www.elpasoco.com

DEVIATION REQUEST AND DECISION FORM

Updated: 6/26/2019

PROJECT INFORMATION

Project Name : Paint Brush Hills Fil 14
Schedule No.(s) : 5226101009
Legal Description : TR E PAINT BRUSH HILLS FIL NO 13 E

APPLICANT INFORMATION

Company : The Landhuis Company
Name : Jeff mark
☐ Owner ☐ Consultant ☐ Contractor
Mailing Address : 212 North Wahsatch Avenue, Suite 301
Colorado Springs, CO 80903

Phone Number : 719-635-3200
FAX Number :
Email Address : jmark@landhuisco.com

ENGINEER INFORMATION

Company : LSC Transportation Consultants, Inc.
Name : Jeffrey C. Hodsdon
Mailing Address : 2504 E. Pikes Peak Ave., Suite 304
Colorado Springs, CO 80909

Phone Number : 719-633-2868
FAX Number : 719-633-5430
Email Address : jeff@LSCtrans.com

Colorado P.E. Number : 31684

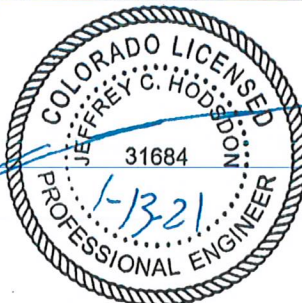
OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

Signature of owner (or authorized representative)

Date

Engineer's Seal, Signature
And Date of Signature



DEVIATION REQUEST (Attach diagrams, figures, and other documentation to clarify request)

A deviation from the standards of or in Section **2.3.7.D 1 & 2** of the Engineering Criteria Manual (ECM) is requested.

Identify the specific ECM standard which a deviation is requested:

2.3.7.D.1 Exclusive Left Turn Lane Required

Minor Arterials (State Highway Access Code Designation – RB for Rural and NR-B for Urban) and Lower Classifications Left Turn Lane: A left turn lane is required for any access with a projected peak hour ingress turning volume of 25 VPH or greater.

2.3.7.D.2 Exclusive Right Turn Lane Required

Minor Arterials (State Highway Access Code Designation – RB for Rural and NR-B for Urban) and Lower Classifications Right Turn Lane: A right turn lane is required for any access with a projected peak hour right turning volume of 50 VPH or greater.

Note:

Londonderry Drive is classified as an Urban Residential Collector and Rockingham Drive is classified as an Urban Local

State the reason for the requested deviation:

The deviation request is to waive the requirement for left-turn and right-turn auxiliary lanes at the intersection of Londonderry Drive/Rockingham Drive due to low projected through volumes at this intersection. Exhibit 1 shows the location of the subject intersection. The low projected volumes are due to the loop configuration of Londonderry and the anticipated distribution of trips. Based on similar standards used by the Colorado Department of Transportation, it is reasonable to waive the need for an exclusive left-turn lane when the projected opposing lane volumes are low and to waive the need for an exclusive right-turn lane when the projected volumes for the adjacent travel lane are low. Exhibit 1 shows the location of the subject intersection and the subject approaches.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

NOTE: The ECM specifically references the State Highway Access Code. The State of Colorado State Highway Access Code Section 3.5(5) (copy attached for reference): The auxiliary lanes required in the category design standards may be waived when the 20th year predicted roadway volumes conflicting with the turning vehicle are below the following minimum volume thresholds. The right-turn deceleration lane may be dropped if the design hour volume in the travel lane is predicted to be below 150 vehicles per hour (VPH). The left-turn deceleration lane may be dropped if the opposing traffic is predicted to be below 100 DHV.

Exhibits 2 and 3 show the projected short-term and long-term traffic volumes at the intersection of Londonderry/Rockingham.

• **Northbound Left-Turn Lane**

Excluded. See Administrator Comment on pg 5.

○ Short-Term:

- The projected short-term northbound left-turn volume is 55 vehicles per hour (vph) during the afternoon. This is 30 vph above the ECM threshold.
- The projected short-term traffic volumes for the opposing southbound approach is 88 vph. This is below the 100 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive left turn lane

○ Long-Term:

- The projected 20th year northbound left-turn volume is 77 vehicles per hour during the afternoon peak hour. This is 52 vph above the ECM threshold
- The projected 20th year traffic volumes for the opposing southbound approach is 88 vehicles per hour. This is below the 100 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive left-turn lane.

• **Southbound Right-Turn Deceleration Lane**

○ Short-Term:

- The projected short-term southbound right-turn volume is 81 vph during the afternoon peak hour. This is 31 vph above the ECM threshold.
- The projected short-term traffic volumes for the adjacent southbound approach is 88 vph. This is below the 150 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive right-turn lane.

○ Long-Term:

- The projected 20th year southbound right-turn volume is 59 vehicles per hour during the afternoon peak hour. This is 9 vph above the ECM threshold.
- The projected 20th year traffic volumes for the adjacent southbound approach is 68 vehicles per hour. This is below the 150 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive right-turn lane.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

- **Eastbound Approach**

- The intent of the ECM (and CDOT) thresholds is to mitigate the speed difference between through and turning traffic. The eastbound approach will most likely ALWAYS (IN PERPETUITY) be a stop-sign controlled approach. Therefore, there is no need for "speed change lanes" to mitigate the speed difference between through traffic and turning traffic. As auxiliary lanes are not needed for mitigating speed differential, LSC also checked to see if exclusive turn lanes are needed to achieve county-standard Level of Service (LOS) or to mitigate any potential queuing issue. Turn lanes are not needed for either of those issues.

- **Eastbound Left-Turn Lane**

Although the eastbound approach will most likely remain stop controlled in perpetuity, the following is also provided as additional justification, even though mitigation of speed differential will likely never be necessary:

- Short-Term:
 - The projected short-term eastbound left-turn volume is 73 vehicles per hour (vph) during the morning peak hour. This is 48 vph above the ECM threshold.
 - The projected short-term traffic volumes for the opposing westbound approach is 5 vph. This is below the 100 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive left-turn lane.
- Long-Term:
 - The projected 20th year eastbound left-turn volume is 53 vehicles per hour during the morning peak hour. This is 28 vph above the ECM threshold.
 - The projected 20th year traffic volumes for the opposing westbound approach is 5 vehicles per hour. This is below the 100 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive left-turn lane.

- **Eastbound Right-Turn Deceleration Lane**

Although the eastbound approach will most likely remain stop controlled in perpetuity, the following is also provided as additional justification, even though mitigation of speed differential will likely never be necessary:

- Short-Term:
 - The projected short-term eastbound right-turn volume is 49 vph during the morning peak hour. This is below the 50 vph ECM threshold where a right-turn lane is required.
- Long-Term:
 - The projected 20th year eastbound right-turn volume is 69 vehicles per hour during the afternoon peak hour. This is 19 vph above the ECM threshold.
 - The projected 20th year traffic volumes for the adjacent eastbound approach is 125 vehicles per hour. This is below the 150 vph minimum volume threshold where the State Highway Access Code considers it reasonable to waive the need for an exclusive right-turn lane.

LIMITS OF CONSIDERATION

(At least one of the conditions listed below must be met for this deviation request to be considered.)

- ☒ The ECM standard is inapplicable to the particular situation. **(Eastbound approach)**
- ☒ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility. **(NB and SB approaches)**
- ☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Provide justification:

~~NB and~~ SB Approaches:

For this particular situation, reference within the ECM to the Colorado State Highway Access Code is applicable. The State of Colorado State Highway Access Code Section 3.5 (5): The auxiliary lanes required in the category design standards may be waived when the 20th year predicted roadway volumes conflicting with the turning vehicle are below the following minimum volume thresholds. The right-turn deceleration lane may be dropped if the design hour volume in the travel lane is predicted to be below 150 vehicles per hour (VPH). The left-turn deceleration lane may be dropped if the opposing traffic is predicted to be below 100 DHV.

EB Approach:

The intent of the ECM (and CDOT) thresholds is to mitigate the speed difference between through and turning traffic. The eastbound approach will most likely ALWAYS (IN PERPETUITY) be a stop-sign controlled approach. Therefore, there is no need for "speed change lanes" to mitigate the speed difference between through traffic and turning traffic. As an eastbound right-turn deceleration lane is not needed for mitigating speed differential, LSC also checked to see if exclusive turn lanes are needed to achieve county-standard Level of Service (LOS) or to mitigate any potential queuing issue. Turn lanes are not needed for either of those.

CRITERIA FOR APPROVAL

Per ECM section 5.8.7 the request for a deviation may be considered if the request is **not based exclusively on financial considerations**. The deviation must not be detrimental to public safety or surrounding property. The applicant must include supporting information demonstrating compliance with **all of the following criteria**:

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

~~NB~~ and SB Approaches:

The deviation request is based on low volumes (20-year traffic projections) and the CDOT criteria. It is also based on the ability to restripe Londonderry Drive for turn lanes within the existing roadway width if needed in the future and the lack of available right-of-way to construct turn lanes on Rockingham Drive due to existing homes adjacent to the section between Londonderry Drive and Keating Drive.

The deviation will not adversely affect safety or operations.

Based on criteria used by the Colorado Department of Transportation, it is reasonable to waive the need for auxiliary lanes when volumes in the travel lane are low.

There would be sufficient existing roadway width on Londonderry Drive to restripe for turn lanes within the existing roadway width if width is needed in the future.

EB approach:

As the west leg (Rockingham Drive) is stop-sign-controlled at Londonderry Drive, and likely will remain so in perpetuity, auxiliary turn lanes will not be needed on this leg for "speed change" or speed differential purposes. As shown on Exhibits 2 and 3, a single eastbound approach lane at this intersection is projected to operate at LOS B or better during the peak hours. The projected 95th percentile queue with a single approach lane is 0.5 vehicles during the morning peak hour and 0.4 vehicles during the afternoon peak hour. This queue can be accommodated by the available 200 feet of stacking distance of between Londonderry Drive and Keating Drive.

The deviation will not adversely affect maintenance and its associated cost.

Maintenance costs will be less as there will be less pavement area and the curb lines will be consistent.

The deviation will not adversely affect aesthetic appearance.

The width of pavement would be less, which would have a more aesthetic appearance.

The deviation meets the design intent and purpose of the ECM standards.

~~NB~~ and SB approaches:

The ECM specifically references the State Highway Access Code. Based on criteria used by the Colorado Department of Transportation, it is reasonable to waive the need for auxiliary lanes when volumes in the travel lane are low.

EB approach:

Regarding the ECM, the intent of the turn lane criteria is to mitigate speed differential, ensure adequate LOS and mitigate any queuing issues. Turn lanes on this Local road would not be needed based on any of these issues.

The deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, as applicable.

N/A

REVIEW AND RECOMMENDATION:

Approved by the ECM Administrator

This request has been determined to have met the criteria for approval. A deviation from Section 2.3.7.D 1&2 of the ECM is hereby granted based on the justification provided.

APPROVED
Engineering Department

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dsdnijkamp

EPC Planning & Community
Development Department

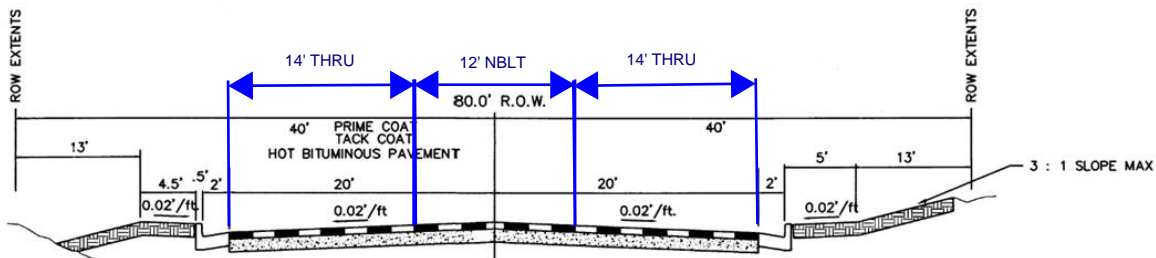
Denied by the ECM Administrator

This request has been determined not to have met criteria for approval. A deviation from Section _____ of the ECM is hereby denied.

ECM ADMINISTRATOR COMMENTS/CONDITIONS:

The approved deviation request excludes the proposed alternative for the northbound left-turn (NBLT) lane.

There is sufficient pavement width to install the NBLT auxiliary lane (see cross-section below). The applicant shall provide striped northbound left-turn lane at the intersection of Londonderry Drive and Rockingham Drive per criteria. See ECM Chapter 2 section 2.3.7.E for turn lane design. Note that some striping may need to change at the northerly side of this intersection to keep the lanes in line per criteria.



TYPICAL SECTION – COLLECTOR ROAD

N.T.S.
VALID FOR LONDONDERRY DRIVE

1.1. PURPOSE

The purpose of this resource is to provide a form for documenting the findings and decision by the ECM Administrator concerning a deviation request. The form is used to document the review and decision concerning a requested deviation. The request and decision concerning each deviation from a specific section of the ECM shall be recorded on a separate form.

1.2. BACKGROUND

A deviation is a critical aspect of the review process and needs to be documented to ensure that the deviations granted are applied to a specific development application in conformance with the criteria for approval and that the action is documented as such requests can point to potential needed revisions to the ECM.

1.3. APPLICABLE STATUTES AND REGULATIONS

Section 5.8 of the ECM establishes a mechanism whereby an engineering design standard can be modified when if strictly adhered to, would cause unnecessary hardship or unsafe design because of topographical or other conditions particular to the site, and that a departure may be made without destroying the intent of such provision.

1.4. APPLICABILITY

All provisions of the ECM are subject to deviation by the ECM Administrator provided that one of the following conditions is met:

- The ECM standard is inapplicable to a particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

1.5. TECHNICAL GUIDANCE

The review shall ensure all criteria for approval are adequately considered and that justification for the deviation is properly documented.

1.6. LIMITS OF APPROVAL

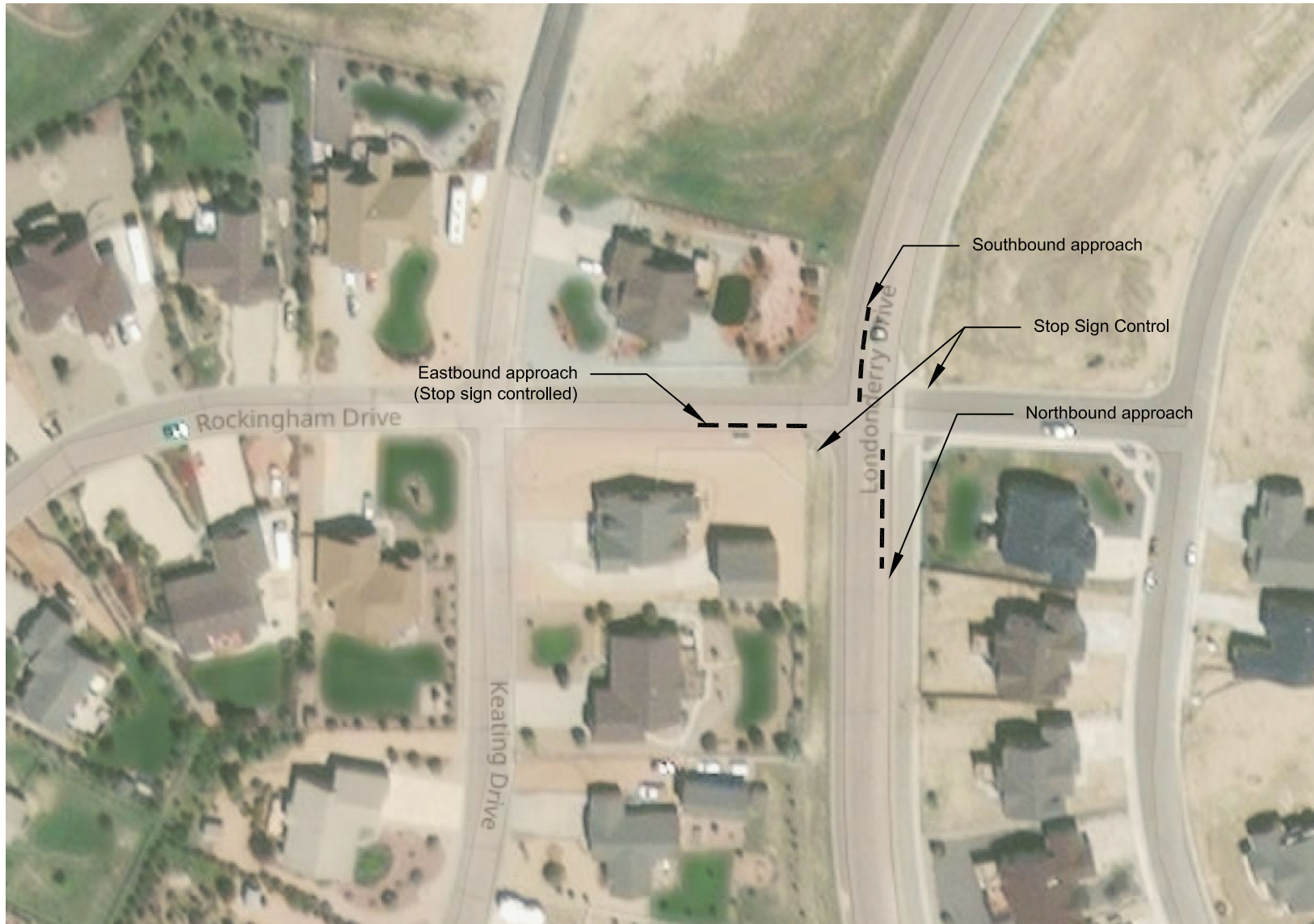
Whether a request for deviation is approved as proposed or with conditions, the approval is for project-specific use and shall not constitute a precedent or general deviation from these Standards.

1.7. REVIEW FEES

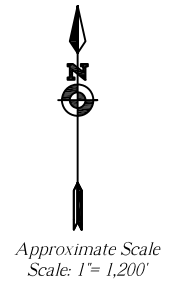
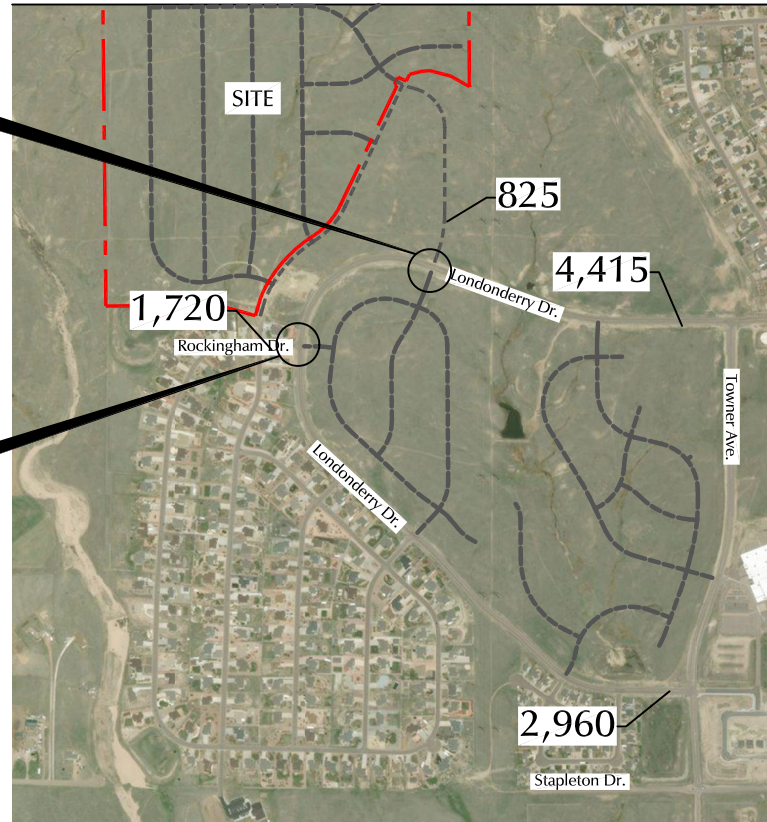
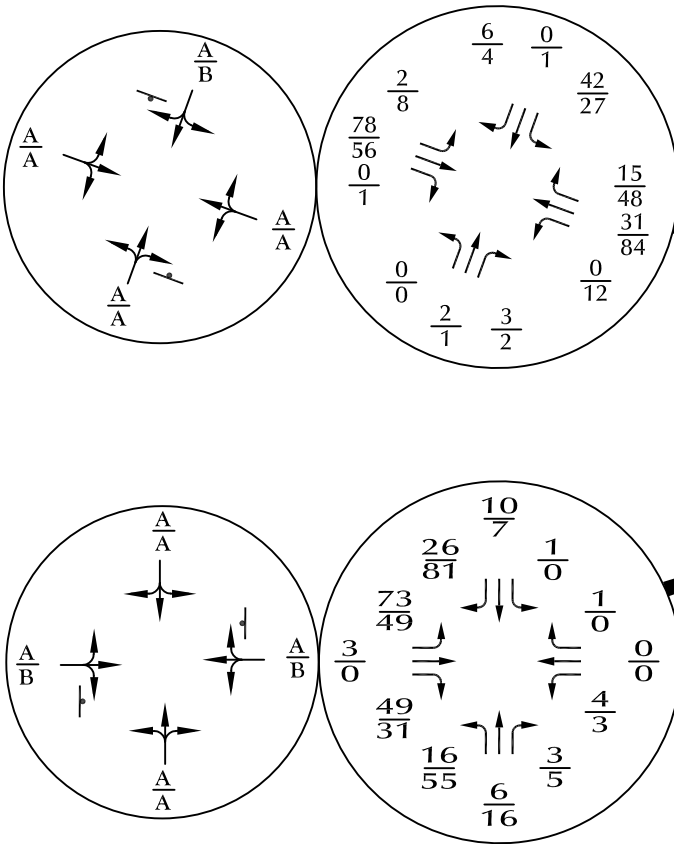
A Deviation Review Fee shall be paid in full at the time of submission of a request for deviation. The fee for Deviation Review shall be as determined by resolution of the BoCC.

Exhibits





Approximate Scale
Scale: NTS



LEGEND:

⊥ = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service

$\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service

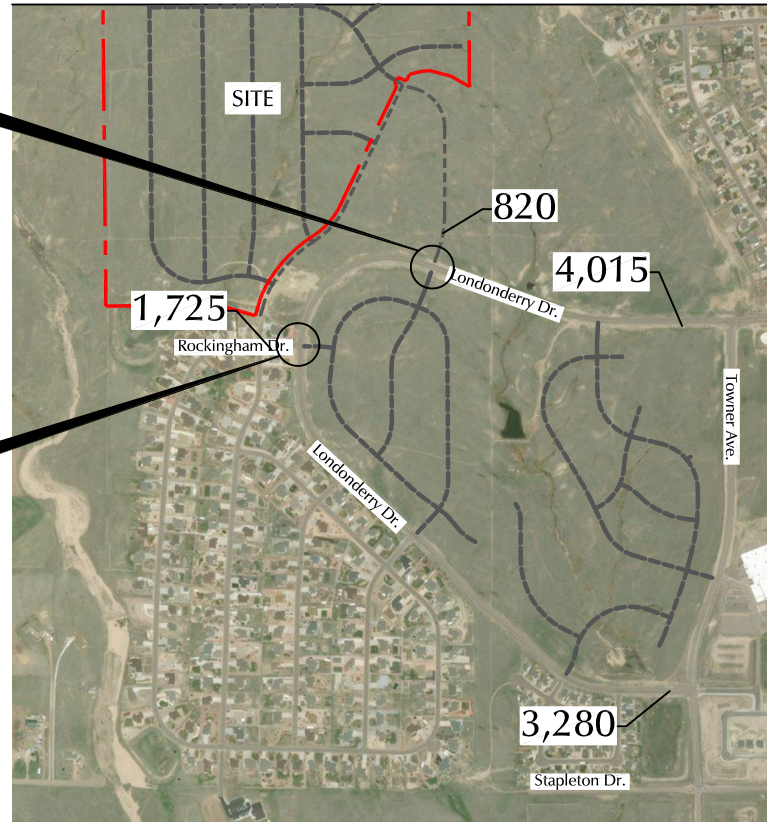
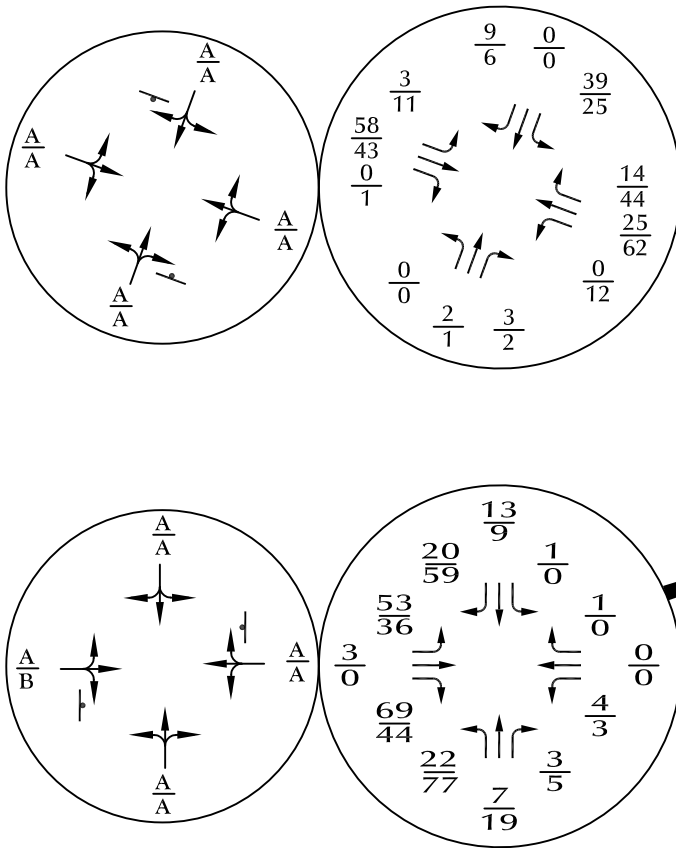
X,XXX = Annual Average Daily Traffic (vehicles per day)



Short-Term Total Traffic, Lane Geometry, Traffic Control and Level of Service

Paintbrush Hills Filing 14 Auxiliary Lane Deviation Request (LSC #184630)

Exhibit 2



Approximate Scale
Scale: 1" = 1,200'

LEGEND:

- \uparrow = Stop Sign
 $\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$
 $\frac{A}{B}$ = $\frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$
 X,XXX = Annual Average Daily Traffic (vehicles per day)

2040 Total Traffic, Lane Geometry, Traffic Control and Level of Service

Paintbrush Hills Filing 14 Auxiliary Lane Deviation Request (LSC #184630)

Exhibit 3

3.5 Auxiliary Turn Lanes

(1) Auxiliary lanes are required as described within each category in Section Three. In addition, auxiliary lanes may also be required where any of the following subsections require.

(2) If necessary, for specifically identified and documented safety and operation reasons, a right turn acceleration lane may be required when, a) for any access where a high traffic volume on the highway or using the access and the lack of acceptable gaps in traffic make use of an acceleration lane necessary for vehicles to safely and efficiently enter the highway traffic flow through the use of available short gaps in traffic, or b) where necessary for public safety and traffic operations based upon site and roadway specific conditions such as horizontal and vertical curves, or c) the posted speed is greater than 40 MPH.

(3) If necessary, for specifically identified and documented safety and operation reasons, a left turn acceleration lane may be required when unique location factors such as; highway speed and traffic density, access volume, the volume of commercial trucks, the influence of nearby access, existing highway auxiliary lanes close to the access, nearby traffic control devices, available stopping sight distance, and where other topographic and highway design factors exist that determine the need.

(4) For those access locations that have a high percentage of trucks using the access, it may be required that each auxiliary lane be built to full length and width according to table 4-6 and the transition taper length shall extend beyond the full length.

(5) The auxiliary lanes required in the category design standards may be waived when the 20th year predicted roadway volumes conflicting with the turning vehicle are below the following minimum volume thresholds. The right turn deceleration lane may be dropped if the volume in the travel lane is predicted to be below 150 DHV. The left turn deceleration lane may be dropped if the opposing traffic is predicted to be below 100 DHV. The right turn acceleration lane may be dropped if the adjacent traveled lane is predicted to be below 120 DHV. The left turn acceleration lane may be dropped if the volume in the inside lane in the direction of travel is predicted to be below 120 DHV.

3.6 CATEGORY F-W - Interstate System, Freeway Facilities

Functional Characteristics and Category Assignment Criteria

(1) This category is appropriate for use on highways that have the capacity for high speed and relatively high traffic volumes over medium and long distances in an efficient and safe manner. They provide for interstate, interregional, intra-regional, intercity and, in larger urban areas, intracity travel. Interstate freeways are typical of this category.

Access Granting Criteria Including Category Related Access Location, Operation and Design Standards

(2) All opposing traffic movements shall be separated by physical constraints such as grade separations and non-traversable median separators. Access to the roadway, when allowed, shall consist of directional ramps, shall be suitably spaced and designed to provide the minimum differential between the speed of the through traffic stream and the speed of the merging or diverging vehicles. Location and design of access shall be determined on an individual basis by the Department in accordance with its authority under section 43-3-101 et seq., C.R.S., as amended, this Code, and the