



ARAPAHOE COUNTY

Building Out the County's Infrastructure

Planning Commission
Study Session – June 3, 2025

Joe Schiel, PE, Engineering Services Division
Jim Katzer, PE, Transportation Division Manager



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Background





Questions Heard During Planning Commission

- Road is congested now. How can you add more development?
- The infrastructure can't handle the volume. When will the roadway/interchange/intersection be improved?
- They are adding so many more houses, why is a traffic impact study not required?
- When is this 4-way stop going get changed to a traffic signal?

Recurring question: Why can't the County just build the infrastructure now, and development can come in afterwards?



Agenda

- PART I – Role of Development Review and Master Plans
- PART II - County Needs for Traffic Improvements
- PART III - Case Studies of Working with Partners
- PART IV - Future Opportunities to Meet County Needs



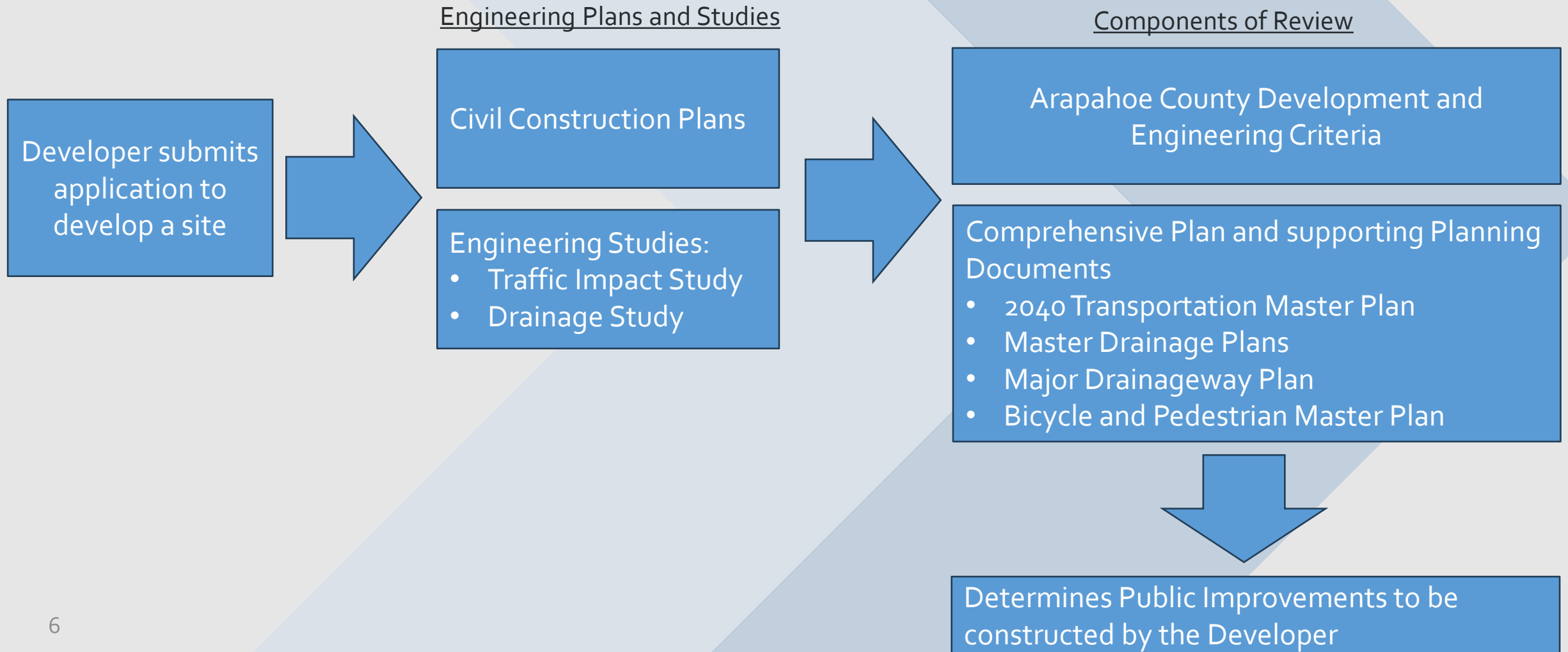
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Part I – Role of Development Review and Master Plans





Development Review Process





TRAFFIC STUDIES

2040 TRANSPORTATION MASTER PLAN

TARGET LEVEL OF SERVICE

LOS D

Freeways, expressways,
urban arterials

LOS C

Local roads, collectors,
rural arterials



LOS A



LOS B



LOS C



LOS D



LOS E



LOS F



TRAFFIC SIGNALS



MUTCD TRAFFIC SIGNAL WARRANTS

Warrant 1, Eight-Hour Vehicular Volume

Warrant 2, Four-Hour Vehicular Volume

Warrant 3, Peak Hour

Warrant 4, Pedestrian Volume

Warrant 5, School Crossing

Warrant 6, Coordinated Signal System

Warrant 7, Crash Experience / accident history

Warrant 8, Roadway Network

Warrant 9, Intersection Near a Grade Crossing



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DRAINAGE STUDIES





ARAPAHOE COUNTY COMPREHENSIVE PLAN AND SUPPORTING DOCUMENTS

*****DEVELOPER MUST CONSTRUCT THEIR FAIR SHARE OF PUBLIC IMPROVEMENTS*****

- **2040 TRANSPORTATION MASTER PLAN**
 - Road widening, new roadway connections, paving
- **BICYCLE AND PEDESTRIAN MASTER PLAN**
 - Installation of bicycle and pedestrian trails, bike lanes
- **MASTER DRAINAGE PLANS**
 - Stream and bank stabilization, bridges

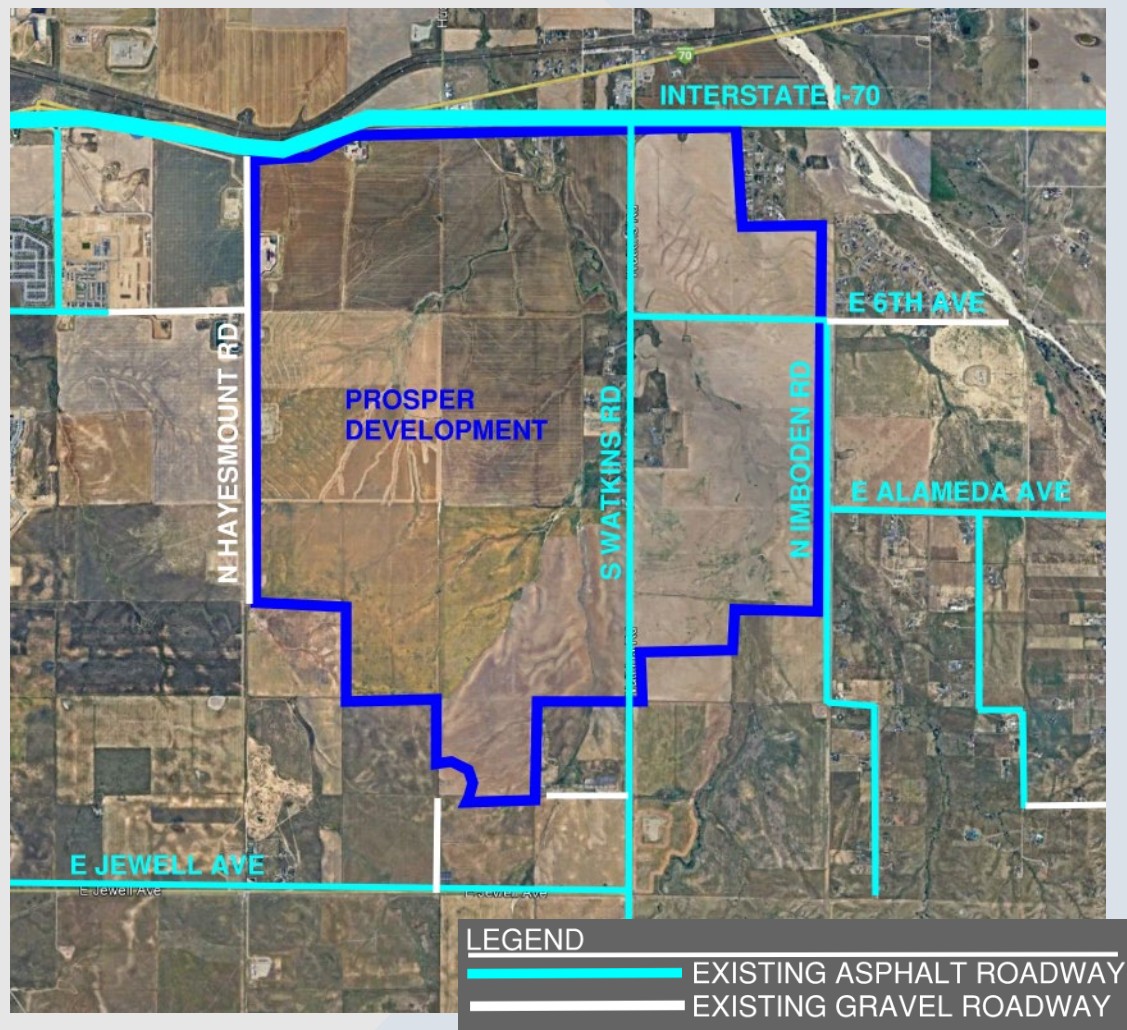




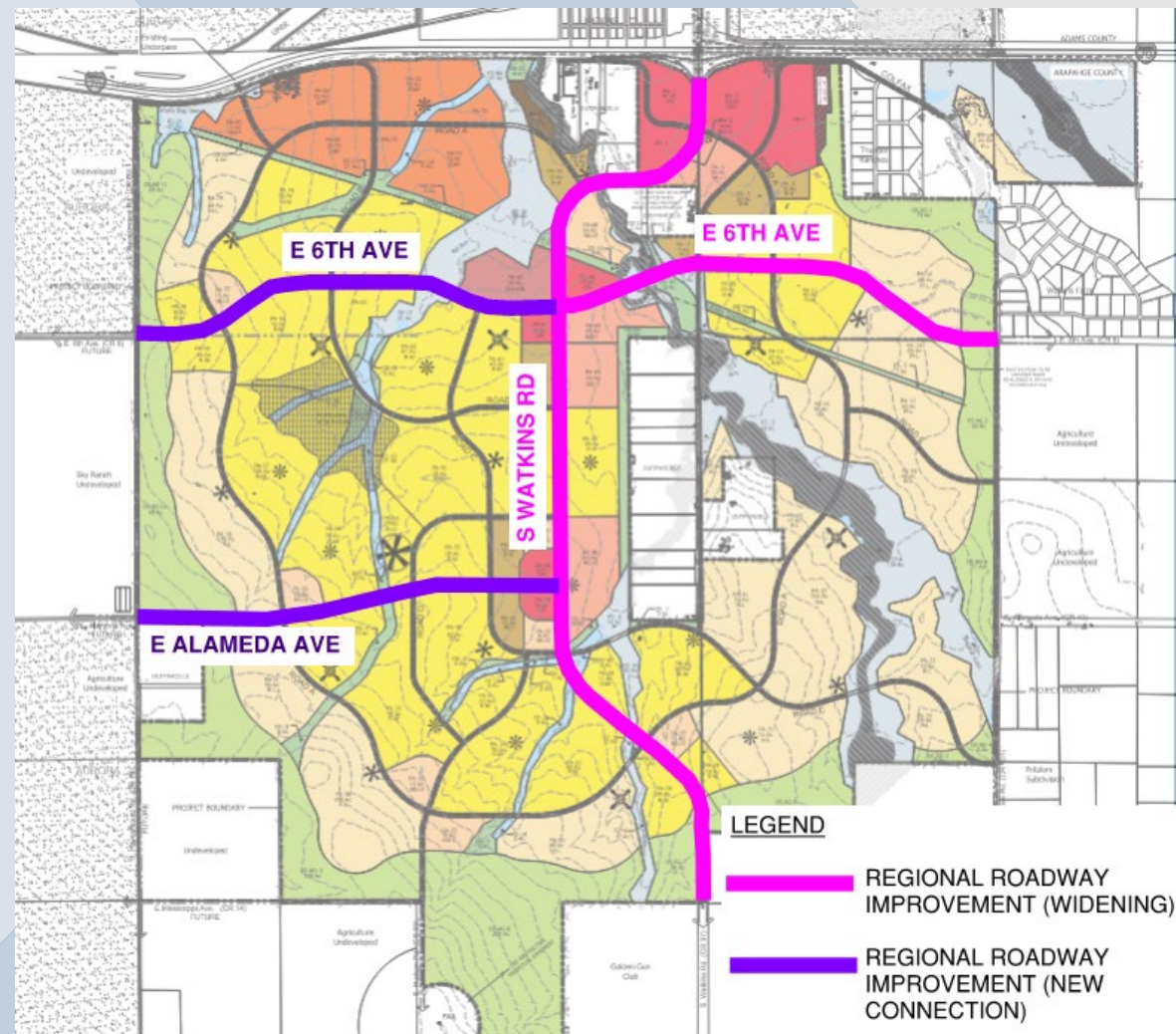
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2040 Transportation Master Plan

EXISTING ROAD NETWORK



PROPOSED ROAD NETWORK





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Part II – County Needs for Traffic Improvements



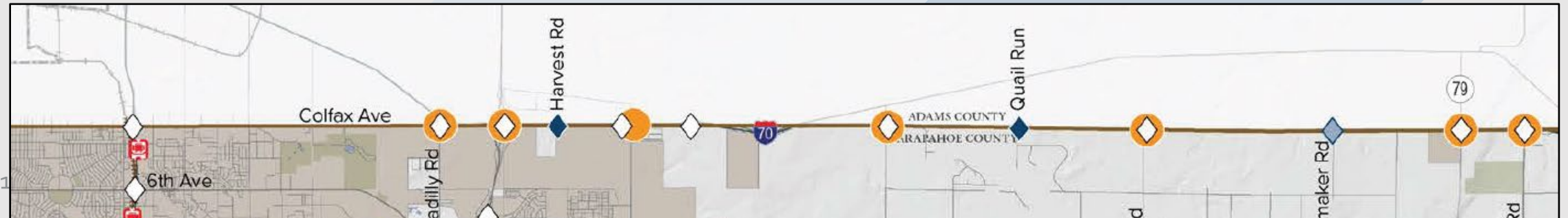


2040 Transportation Master Plan

Recommended Improvements to the transportation system:

- Road widening (21 projects)
- New connections (44 miles)
 - Includes pavement, bridges, ROW
- Interchanges (7 improvement projects, 6 new interchanges)
- Gravel to pavement (46.5 miles)

Cost for recommended improvements: **2026-2030 \$25 to \$30 million a year**





County Funding for Traffic Improvements

Current Budget for Capital Improvement Projects

- 2025 - \$500,000 requested \$5.6M
- Typically given \$5 to \$6 M / yr
- Shortfall is \$20 to \$25 M / yr

Proposition 1A

Options to fund the Shortfall

1. Additional revenue
2. Leverage funding
3. Grant funding
4. Impact fees
5. Other

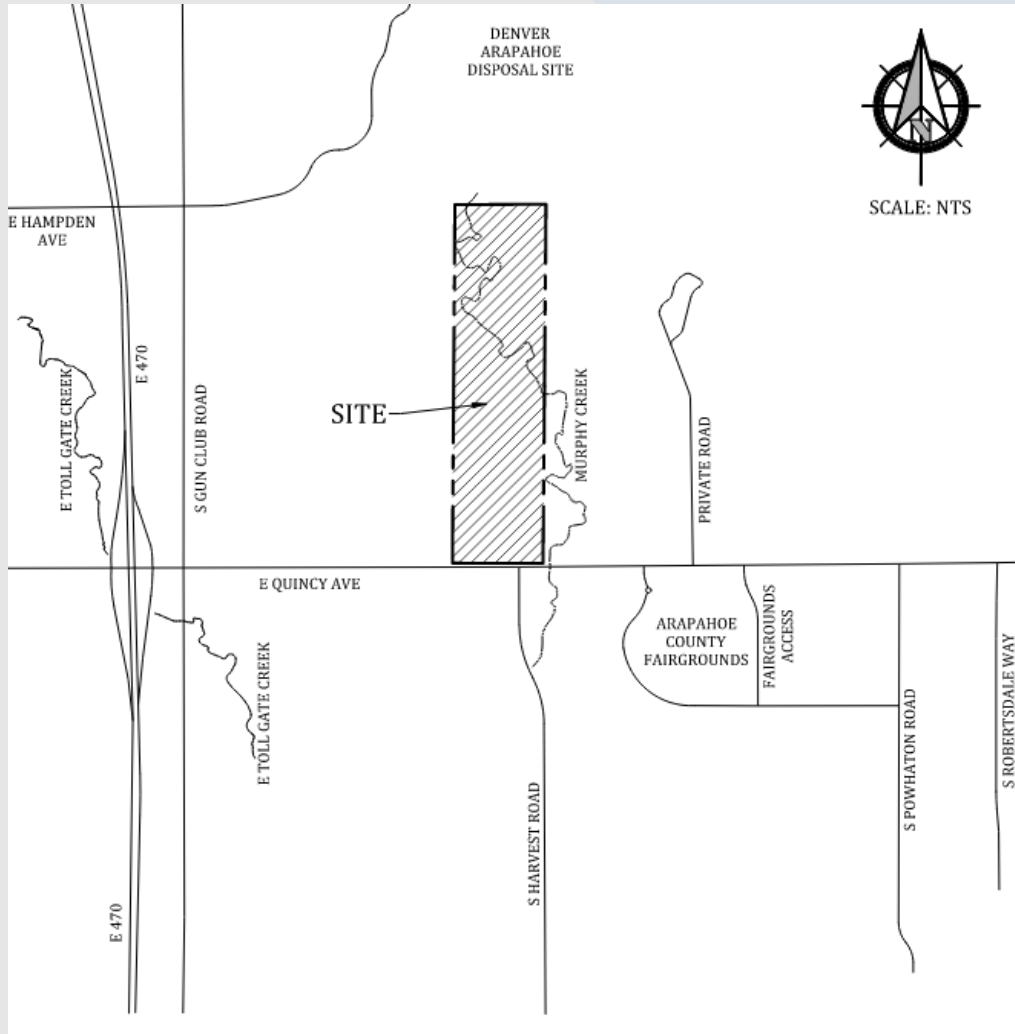


Part III – Case Studies of Working with Partners





Waste Management at Quincy and Harvest



- TRAFFIC AND ROADWAY IMPROVEMENTS CONSTRUCTED BY THE DEVELOPER: \$572,000.00
- STREAM IMPROVEMENTS WITHIN MURPHY CREEK CONSTRUCTED BY THE DEVELOPER: \$409,000.00



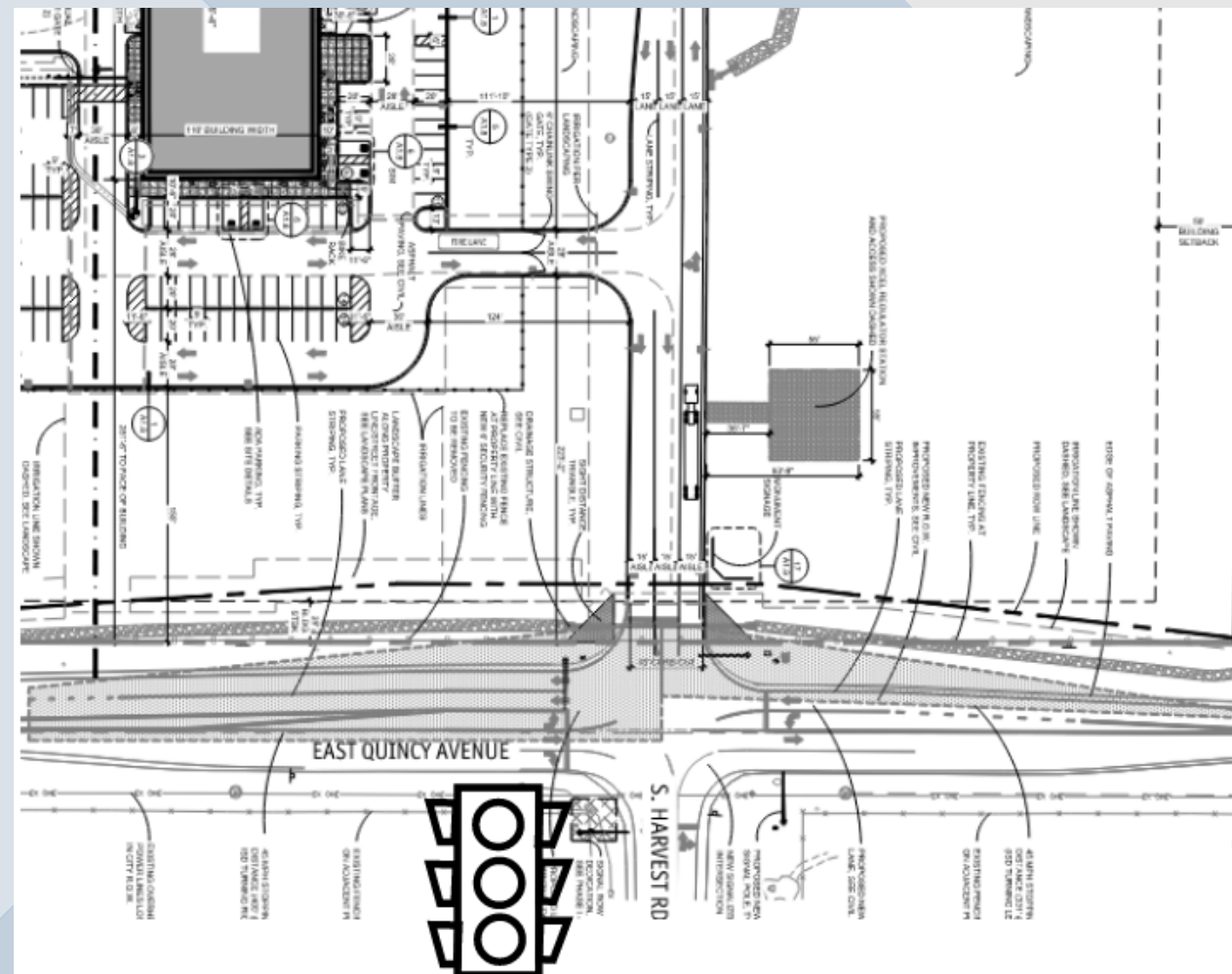
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Waste Management at Quincy and Harvest Traffic Improvements

Existing Intersection

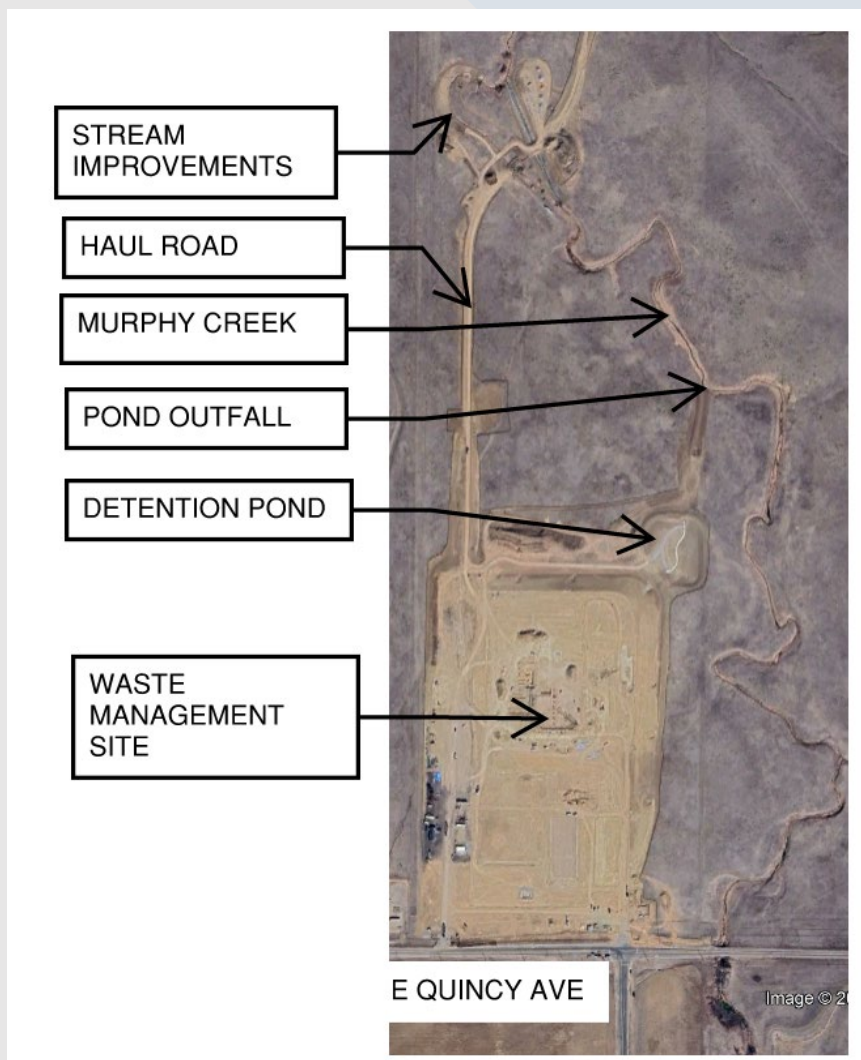


Proposed Intersection



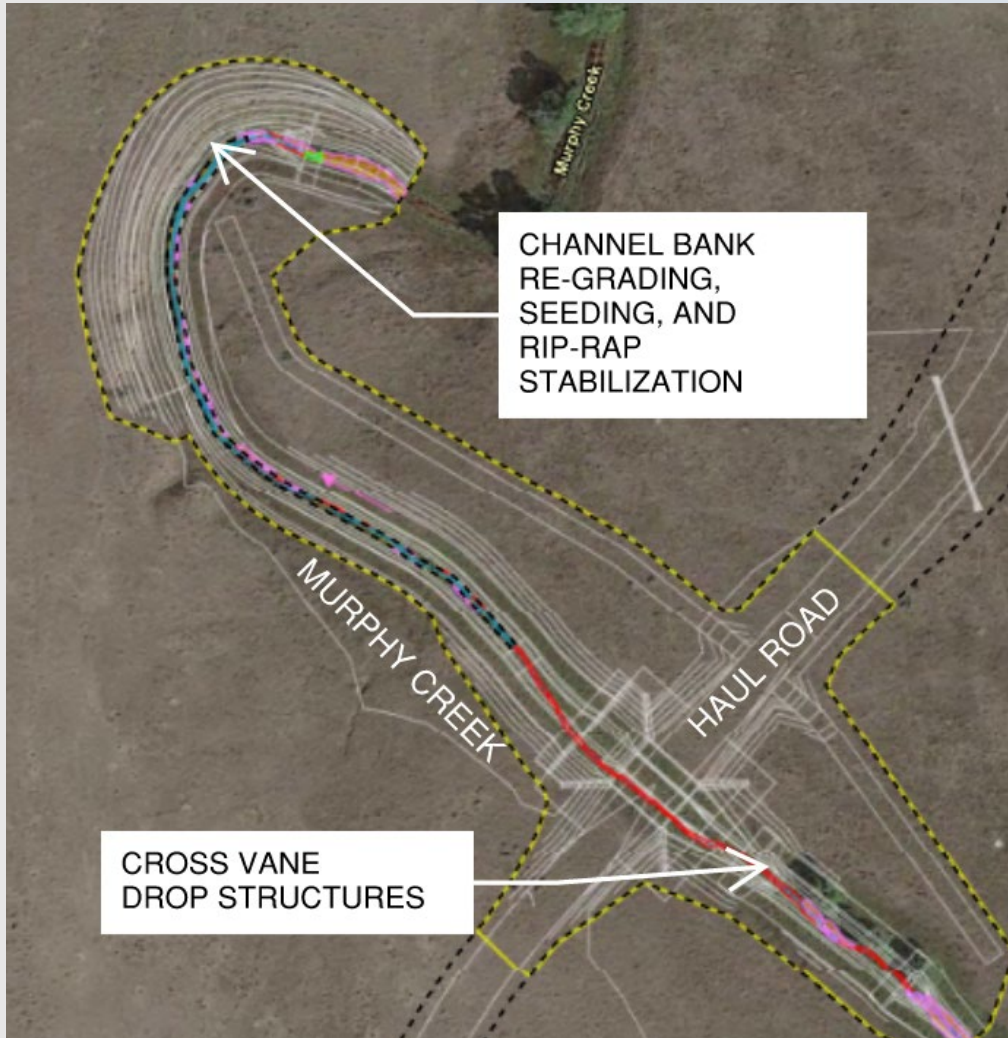


Waste Management at Quincy and Harvest Stream Improvements





Waste Management at Quincy and Harvest Stream Improvements





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Waste Management at Quincy and Harvest Stream Improvements



WASTE MANAGEMENT DETENTION POND



CHANNEL BANK RE-GRADING AND STABLIZATION



Waste Management at Quincy and Harvest Stream Improvements



CROSS VANE DROP STRUCTURE

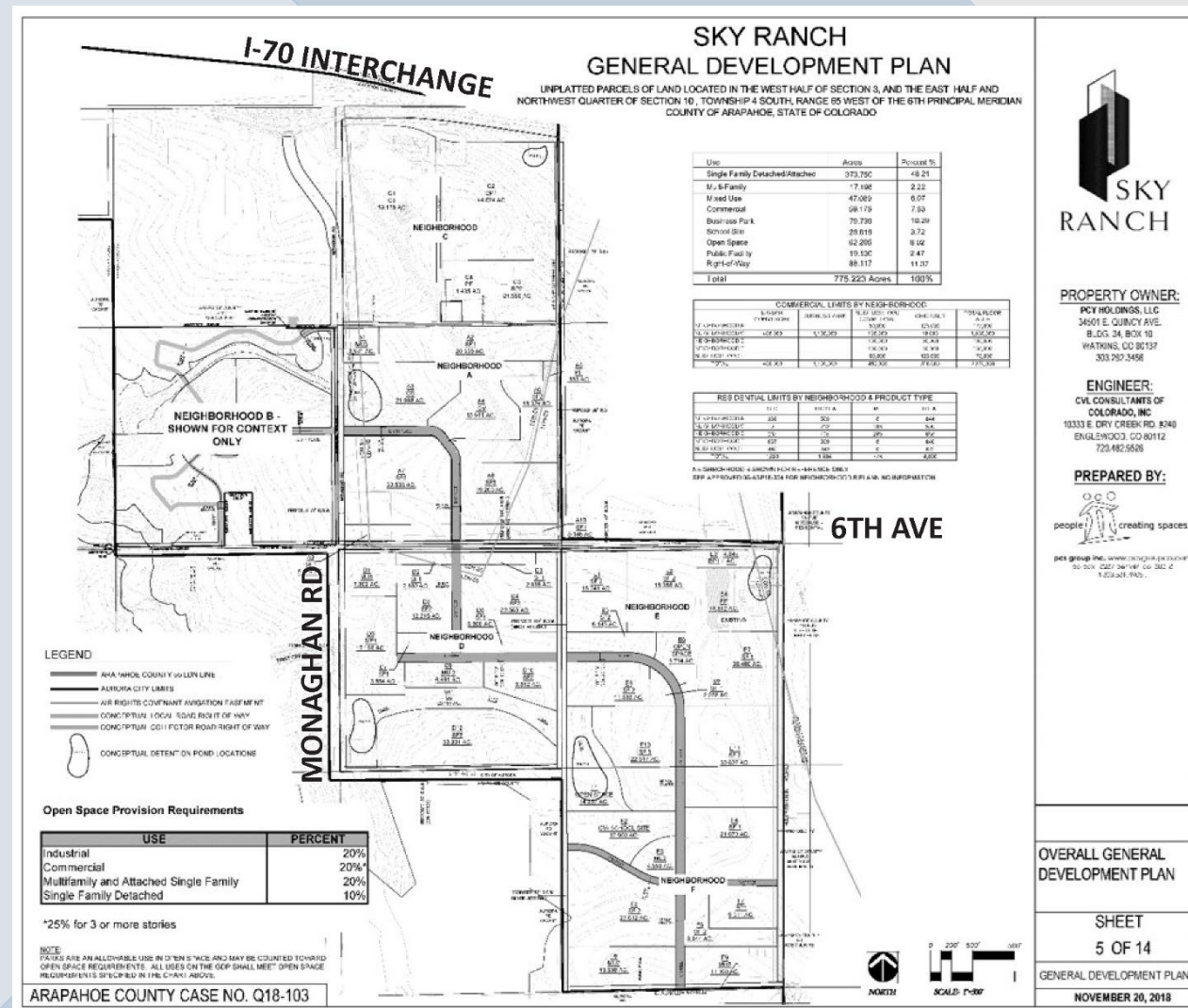


CROSS VANE DROP STRUCTURE



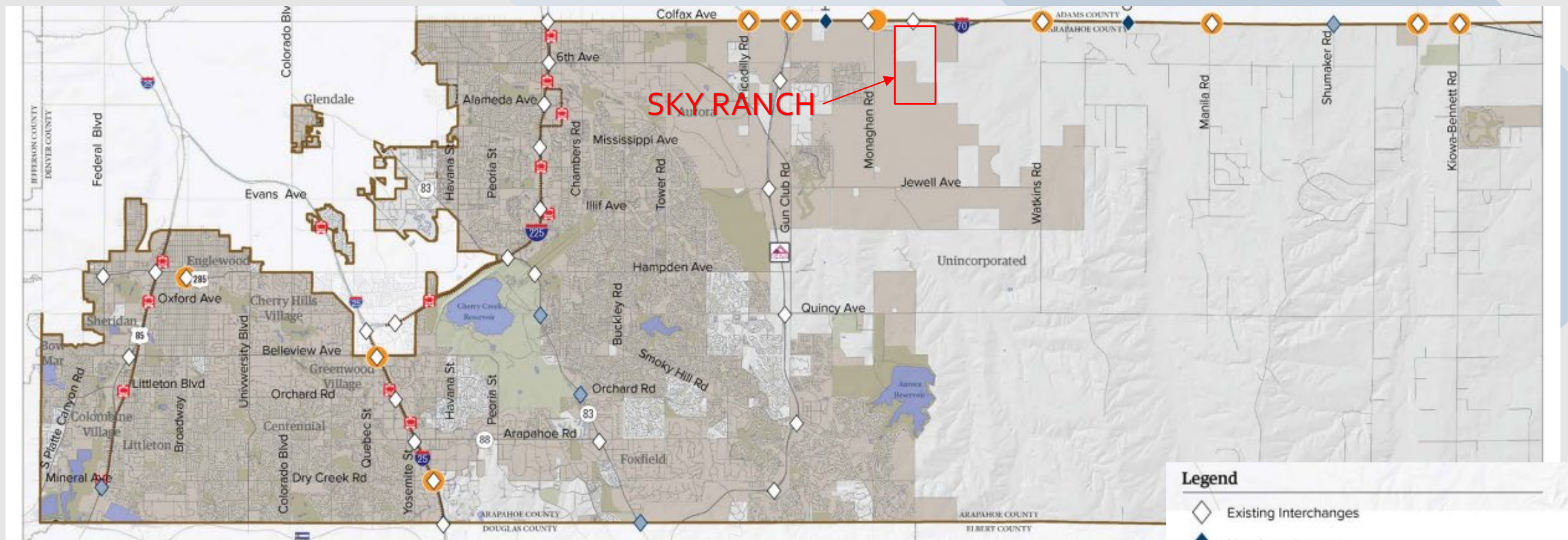
Case Studies of Working with Sky Ranch

- 775 acres
- 4,000 dwelling units (D.U.)
- 2,270,000 SF commercial/ mixed uses
- 1400 D.U. permitted prior to completion of 1601 process
- 400 D.U. currently exist





Interchange Projects

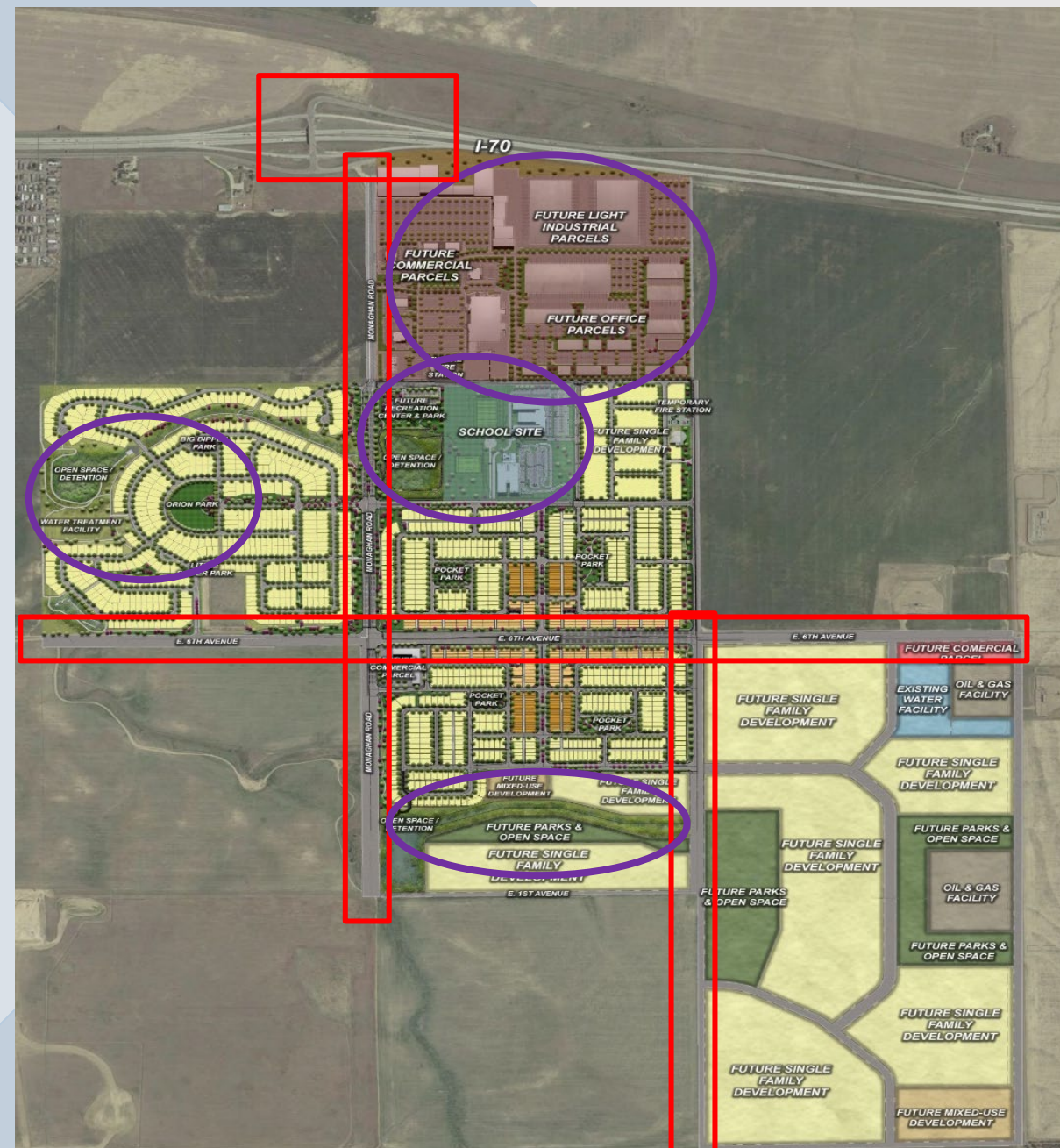




Sky Ranch Development

Developer Built Improvements

- Regional Road Construction
 - Monaghan with signals
 - 6th Avenue with signals
- Stormwater improvements
- Park/Schools/Commercial/Jobs
- Offsite improvements - Interchange





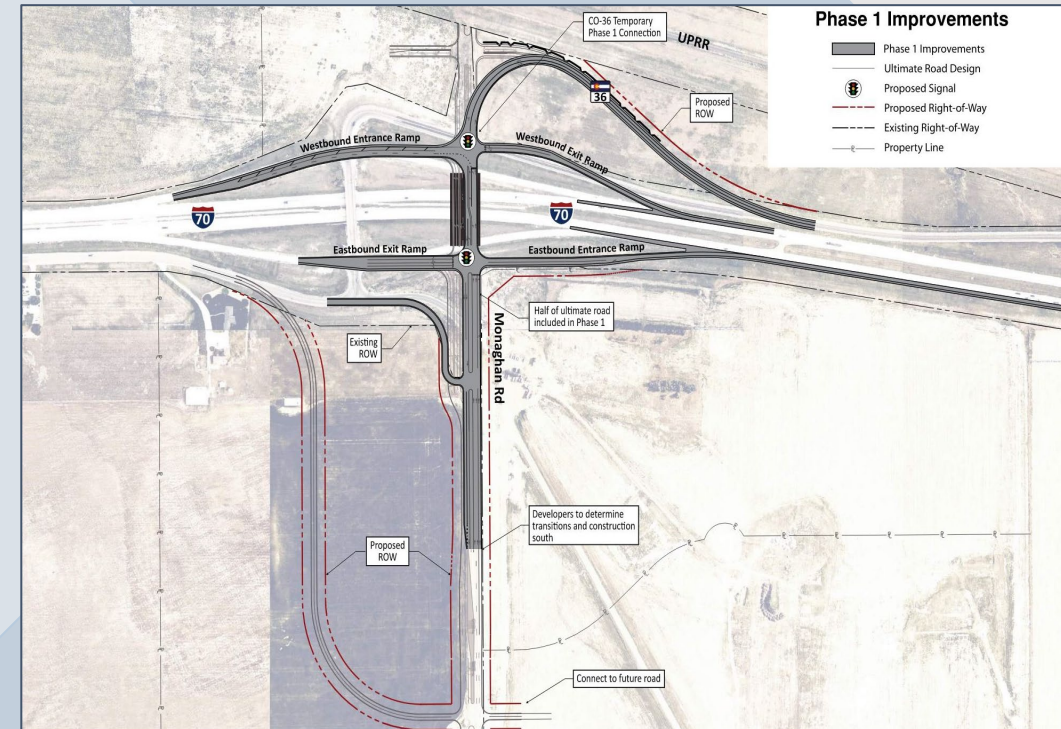
Sky Ranch Development

I-70 / Airpark Interchange

- Interchanges Study completed in 2021 - new interchange was needed
- CDOT 1601 Process
- Construction costs estimated to be \$40M (\$68M w/ finances charges)

Funding of interchange

- Impact fees
- Contributions by AC and Aurora





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Part IV – Future Opportunities to Meet County needs





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Future Opportunities to Meet those Needs

Copperleaf Development

- Past projects - Quincy Avenue (\$1.2 million)



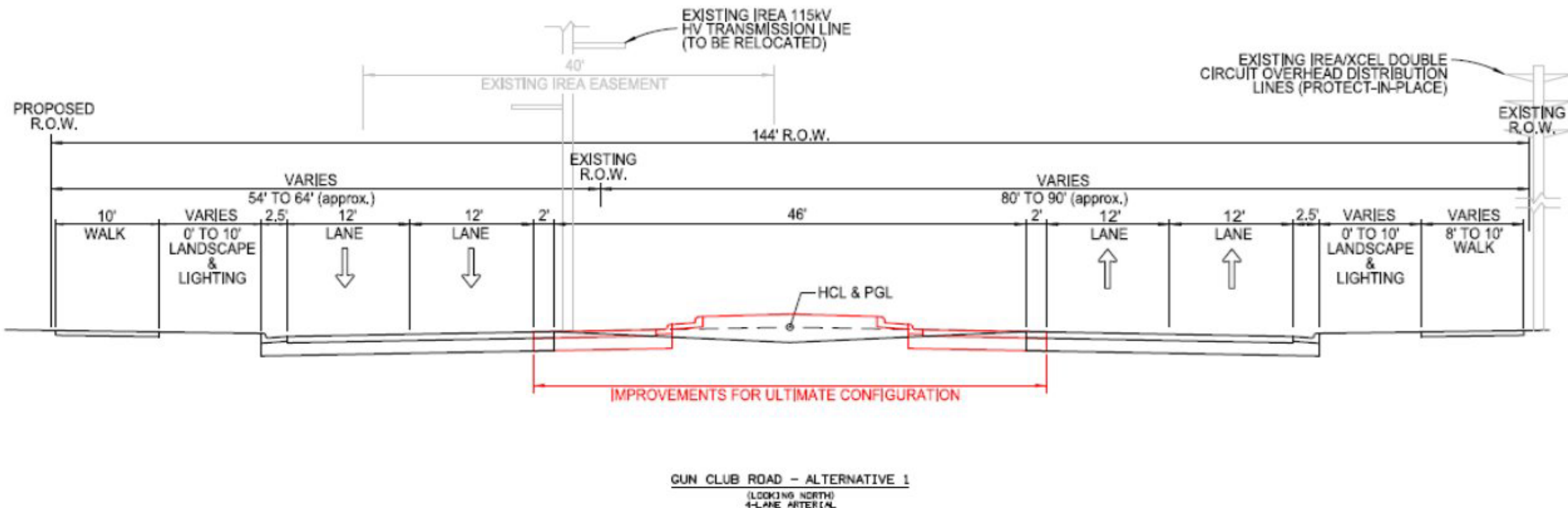


Current project - \$30M

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Future Opportunities to Meet those Needs





Future Opportunities to Meet those Needs

Copperleaf Development Impact Fee contribution

- 480 multi-family dwelling units
- Regional Transportation Impact Fee (RTIF) contribution
 - \$2,141/unit x 480 units = \$1,027,680
 - Regional transportation improvements



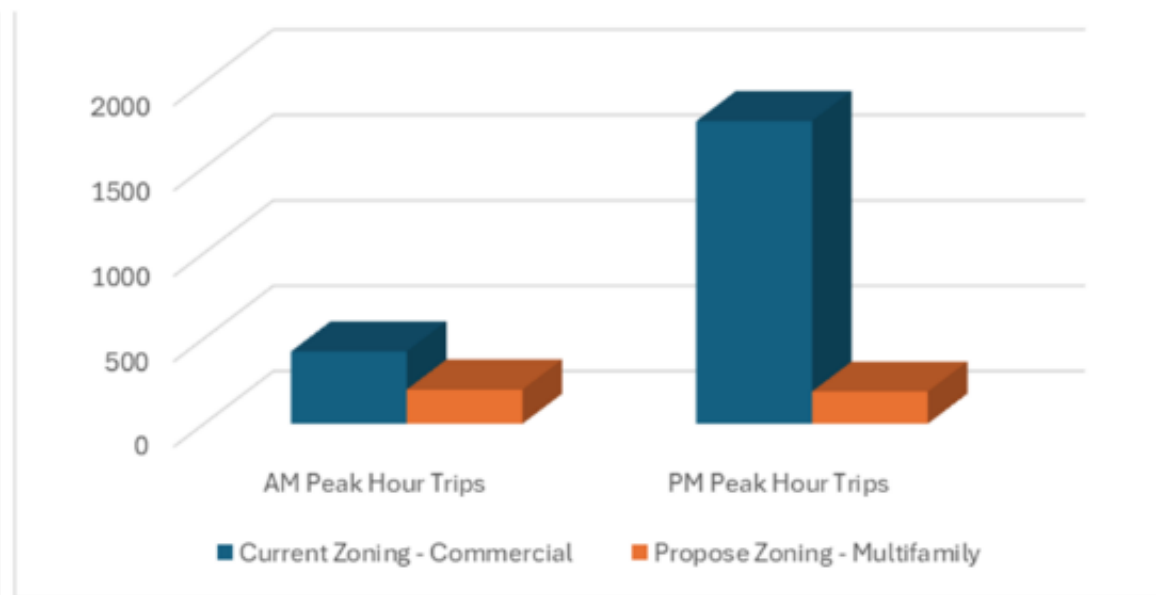
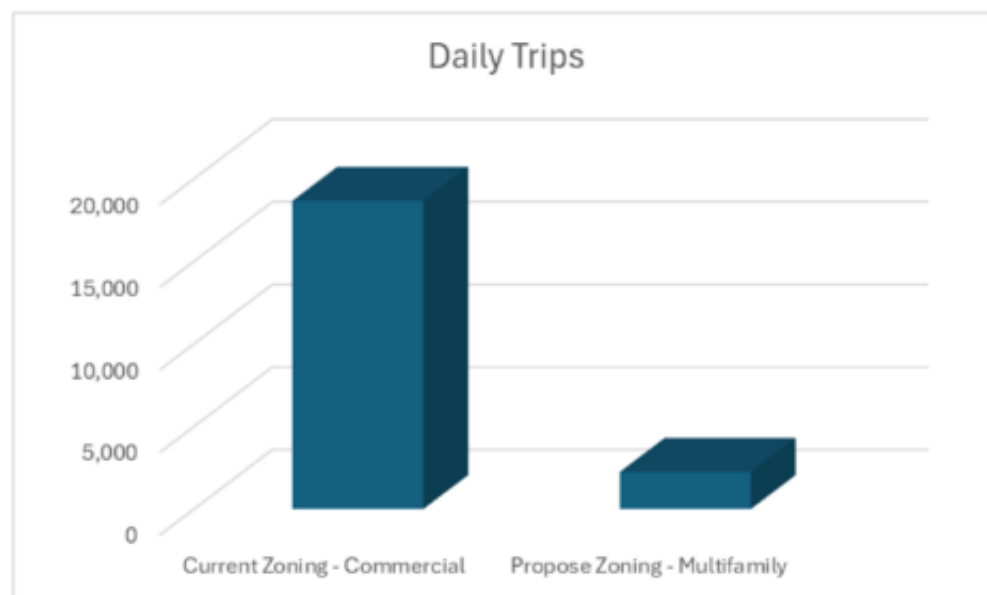
TRAFFIC GENERATION - COMMERCIAL VS. MULTI-FAMILY

Commercial:

- 490,000 square feet of commercial (Land Use Code #820) would project to create 18,658 daily trips with 423 occurring during the AM peak hour and 1,772 occurring in the PM peak hour

Multi-Family:

- The currently proposed 480 multifamily mid-rise (Land Use Code #221) would project to create 2,243 daily trips with 200 occurring during the AM peak hour and 188 occurring in the PM peak hour





Take-aways

- County policy utilizes a variety of ways to build out roadways and stormwater systems
- Partnerships with Development is a critical method to building infrastructure
 - Cannot seek reimbursement for public improvements per C.R.S.
- Results of County's Policy
 - Projects are delayed
 - Incomplete infrastructure
- Zoning changes can positively impact future traffic volumes

Questions?

Joe Schiel, PE

Engineering Services

Jim Katzer, PE

Transportation Division

