



# AGS Feasibility Study

PLT Meeting 13  
August 14, 2013

# Agenda

- ▶ Introductions (5 minutes)
- ▶ Public Comment (5 minutes)
- ▶ AGS Study Findings To Date / PLT Roles & Responsibilities (25 minutes)
- ▶ Statements of Financial Interest – Detailed Review (40 minutes)
- ▶ Break (10 minutes)
- ▶ PLT Input: Leading the Study & Enabling Decisions (60 minutes)
- ▶ Next Steps (15 Minutes)

# Introduction to the Meeting

- ▶ Website Update
- ▶ Media Outreach



# Public Comment

- ▶ The public is invited to make brief comments



# Drafting the Study Report

- ▶ Documentation of process
- ▶ Findings to date
  - Technology Feasibility
  - Alignment & Land Use Feasibility
  - Capital Cost Estimates
  - Ridership and O&M Ranges
- ▶ Next steps
  - Ridership and O&M Refinements
  - Governance
  - Funding Feasibility and B/C Analysis

# AGS Goals Revisited

**Goal:** Identify technologies that can meet the system performance & operational criteria

**Process:**

- Industry Webinars & Outreach at Conferences
- Statements of Technical Interest (SOTI)
- Technology Forum

**Outcomes:**

- Multiple technologies exist which can meet the system performance & ops criteria,
- Group the Technologies by Alignment
- Further Develop the Alignments
- Focus on Maglev and HSR as the current commercially available technologies

# AGS Goals Revisited

**Goal:** Complete AGS Feasibility Study & gain consensus on questions of feasibility, **cost, ridership, land use & governance**

**Process:**

- Define technology–alignment pairs for costing purposes
- Cost estimation process using “standard cost categories,” a structure used by both FRA and FTA.
- Alignment technical working groups and PLT meetings
- Two rounds of county–level meetings regarding stations and land use evaluation

**Outcomes:**

- 4 alignments: HS maglev, HS rail, Hybrid, I–70 ROW
- Determination that I–70 ROW alignment is too slow
- Costs of \$11 – \$32 B for full, \$5.5 to \$18 B for MOS costs
- Narrowed number of stations to approximately 2 per Cnty
- County–level acceptance of large stations & TOD in the range of 10–20 acres for stations
- Still optimizing ridership, but range of 3.5 – 4.9 M riders/year based on an array of modeling efforts

# AGS Goals Revisited

**Goal:** Identify technological & **financial feasibility** of AGS in relationship to I-70 Mountain Corridor Record of Decision

**Process:**

- Financial workgroup / PLT technical committee meetings
- P3/Concession Industry Outreach: webinars, conferences
- Statements of Financial Interest (SOFI)

**Outcomes:**

- No capital funding available
- Gap in capital funding of at least \$5.5 Billion for MOS
- Gap in capital funding of \$11 to \$32 Billion – Full Corridor
- Finance rates: 4 – 6.5% per year
- Maximum borrowing likely in the \$2 – \$4 Billion range
- Unavailable Federal, State or Local funding at this time
- Ridership fare revenues are insufficient to bond
- Maglev provides significant capital cost savings: \$11 – 25 B for maglev vs. \$32 B for high-speed rail

# AGS Goals Revisited

**Goal:** Consistent and close coordination between AGS, ICS and Co-Development, including but not limited to a transfer-free connection to Denver International Airport

**Process:**

- AGS PLT Representatives on ICS PLT
- ICS Study Team Representatives Attending AGS Meetings
- Close inter-team coordination on methods / approaches
- CDOT “statewide system” approach with both studies
- T&R has formed PLT to coordinate Co-Development

**Outcomes:**

- Remaining ICS full scenarios are technology agnostic
- ICS team evaluating technology agnostic MOS
- Phasing evaluation on-going
- T&R to do sensitivity analysis with AGS ridership

# AGS Goals Revisited

**Goal:** Endorsement from the local, state and federal levels for conclusions of the study document

**Process:**

- PLT is core of effort to involve all levels of government
- Briefings / update presentations given at all levels
- Technical Committees formed on the following topics: technology, land-use/station, alignment, funding/financing, and modeling

**Outcomes:**

- Endorsement for technologies, alignments, cost estimates, land use evaluation, *the process of* ridership forecasting, and *the process of* funding/financing analysis
- Refinement & discussion continuing on ridership results, governance, and funding/financing

# RFFI Overview

- ▶ A review of responses to the Request for Financial Information for the AGS
  - Summary of July Meeting Information
  - Additional insights from the concessionaire and financial community
  - Findings

# RFFI Responses

- ▶ Last meeting provided high level summary
- ▶ Only responses from technology providers
- ▶ Responses reflect primary focus of implementing a particular technology
- ▶ The primary reason for the lack response from financial firms is that the key issues surrounding technology, demand, constructability and funding have not yet been defined
- ▶ Supplemented information with selected interviews and information requests with concessionaires and finance industry professionals

# Key Points Discussed in July

- ▶ No federal funding
- ▶ Very little potential for project generated revenue sources
- ▶ No consensus on requirements for additional public funding
- ▶ No meaningful responses on financing capacity
- ▶ Little meaningful input as to financing costs
- ▶ Recommended concession from 20 to 99 years

# Key Points Discussed in July

- ▶ General support for availability payment structure
- ▶ Broad range of views on appropriate terms and conditions, and governance
- ▶ No meaningful technology input
- ▶ General support for the P3 delivery structure with varying levels of CDOT support required
- ▶ Broad range of responsibilities suggested between public and private roles/risk transfer, from fully private to fully public

# Key Points Discussed in July

- ▶ General statements on other revenue streams
- ▶ No consensus as to whether combination with ICS, tolling are beneficial

# Key Considerations for Financing AGS

- ▶ Whether taxable or tax-exempt financing, many of the same principles apply...down payment & revenue stream
- ▶ Any transit financing will rely primarily on government taxes or dedicated user fees to back the financing, this revenue stream must be definitive and reliable

# Key Considerations for Financing AGS

- ▶ Any financier that issues debt in the capital markets will require ratings from at least one of 3 rating agencies: S&P, Moody's, Fitch
- ▶ “Private” financing for AGS will be undertaken as a Design–Build–Finance–Operate–Maintain
- ▶ Because the farebox will not provide funds for capital repayment, the payment to the concessionaire will be on an availability payment basis and will likely also include milestone payments.

# Key Considerations for Financing AGS

- ▶ The equity portion of the financing would likely be 10–20%, the remainder will be bank debt, Private Activity Bonds, and/or TIFIA.
- ▶ Equity portion requires highest return-on-investment, at least 12%

# RFFI Responses – Federal Funding

- ▶ No federal funding is currently available for new high speed transit systems
- ▶ Unclear which agency would control funding: FTA or FRA

# RFFI Response – Project Generated Revenues

- ▶ Revenues beyond the fare box are likely to be insignificant



# RFFI Responses – Additional Public Funding

- ▶ To finance the AGS will require:
  - Substantial new public revenues from one or more predictable revenue sources to pay for capital costs & potentially a portion of O&M and long-term renewal and replacement
- ▶ Likely sources include broad based tax sources such as a sales tax, income tax and/or motor fuel or vehicle tax.
  - TABOR requires a vote of the people for both the imposition of the tax and the associated long-term debt

# Funding Requirements – \$5.5B Project

Annual Revenue Needed to Repay Debt			
30-year bond, 6.75%/year interest			
		Portion Financed	
		100%	50%
Federal Share	0%	\$484,000,000	\$242,000,000
	25%	\$363,003,000	\$182,000,000
	40%	\$290,000,000	\$145,200,000
	50%	\$242,000,000	\$121,000,000

Note: Assumes approximately 12% debt service reserve/issuance costs

Total Repayment Costs After 30 Years			
		Portion Financed	
		100%	50%
Federal Share	0%	\$14,500,000,000	\$7,300,000,000
	25%	\$11,000,000,000	\$5,500,000,000
	40%	\$8,700,000,000	\$4,400,000,000
	50%	\$7,300,000,000	\$3,600,000,000



# RFFI Responses Financing Capacity

- ▶ Extremely difficult to obtain transportation project financing of \$3 Billion or greater
- ▶ That level of financing would require a structure with:
  - High level government backing
  - Very strong revenue stream
    - Minimum debt service coverage ratios of 1.4X

# RFFI Responses – Financing Capacity

- ▶ A significant portion of the project costs would need to be funded as grants and available at the outset of the project
- ▶ There are significant perceived risks if the technology being procured is unproven
  - Maglev is perceived by majority of finance sector to be unproven at this time

# RFFI Responses – Financing Cost

- ▶ The financing costs will depend on credit, term and tax status of the bonds issued
- ▶ Plan of finance must include sufficient cushion to accommodate potential market volatility

# RFFI Responses – Financing Cost

- ▶ Current interest rates remain close to historic lows, long term tax exempt rates approaching ten year average
  - 30–year maturity for a AA tax exempt credit as of July 22nd 4.46%; 5.34% for BBB–
- ▶ Private debt would carry materially higher rates even using Private Activity Bonds
  - Private equity would be 10–20% of the debt mix for an availability payment, that portion would carry at least a 12% return

# RFFI Responses – Recommended Term

- ▶ For private financing, optimal term for the concession is probably 50 years. If it is a tax-exempt financing likely term is 40 years.

# RFFI Response – Recommended Structure

- ▶ Availability payment structures require substantial milestone payments; recent examples have seen 51–69% of design–build cost

**TABLE 1 - PUBLIC FUNDS PAYMENT**

Project	Total project cost	Design & construction cost	Milestone payment amount	Milestone payment timing
Miami Tunnel	US\$863m	US\$652m	US\$450m	US\$100m during design and construction phase; US\$350m at final acceptance
I-595	US\$1,833.8m	US\$1.2bn	US\$685m	Seven annual payments commencing at final acceptance
Presidio Parkway	US\$362.2m	US\$271.2m	US\$173m	Single milestone payment made at substantial completion
East End Crossing	US\$1,18bn	US\$763m	US\$392m	US\$297m during design and construction phase; US\$95m at substantial completion

# RFFI Response – General Terms

- ▶ A well-defined and committed local funding strategy is needed to attract both private sector and Federal interest.
- ▶ This includes a well developed sponsor's case (business plan) that describes strategy for:
  - Funding
  - Financing
  - Implementation on a year-by-year basis.

# RFFI Response – Technology Selection

- ▶ Financial community wants proven technology that does not present a material risk in constructability or performance
  - Availability payment situations further emphasize this technology risk
    - Payments will not be made until the project is available for use

# RFFI Response – Risk Allocation/Roles (Private)

- ▶ Private sector must have sufficient payment guarantees to obtain necessary bank or capital markets financing
- ▶ Requiring private sector to take revenue risk will increase the cost of the private financing
- ▶ Private sector will require clear design, build, operation and maintenance criteria and otherwise will wish to maintain control over the delivery

# RFFI Response – Risk Allocation/Roles (Public)

- ▶ Role of the public sector depends on the nature of the contract
- ▶ Under a DBFOM (availability payment) public sector provides oversight of design/construction, operations and maintenance as well as all funds to repay the project financing

# Conclusions

- ▶ What Is Needed to Gain Critical Participation?
  - Securing and demonstrating State and local financial commitment for the AGS Project critical to attract:
    - Private Sector
    - Federal Government
  - Better definition of engineering and travel demand issues
  - Determination of the sponsor/owner
  - Creation of detailed, base case including:
    - Financial plan including the details of the State and local funding strategy

# Conclusions

- ▶ Before conducting solicitation for an availability payment concession it would be necessary to:
  - Complete (or nearly complete) environmental process
  - Have necessary votes/approvals for public funding sources in place

# Funding & Financing Questions to Reach a Conclusion

- ▶ Where to start on \$5.5 Billion funding need for MOS C-470 to Breckenridge?
- ▶ Right “start” for the corridor if it will take 30 years for this MOS, and only deliver 1 / 3<sup>rd</sup> of the corridor vision?
  - No DIA connection
  - No Eagle Airport or Eagle County connection
  - 5x the entire CDOT annual budget if paid at once, or 30% of CDOT annual budget for 30 years if there is no other significant funding source...
  - Infeasible for CDOT to do by itself

# Governance / Institutional Structure

## Questions to Reach a Conclusion

- ▶ Early study guidance: public sector owns the physical asset ultimately, though a private entity may operate & maintain over a 20–50 year concession period
  - Still the consensus of the PLT?
- ▶ Governance structure – State Entity
  - Eagle, Summit, Clear Creek, & Jefferson Counties as potential station area taxing districts
  - Airports as additional partner entities: DIA & ECRA
  - Sales tax coverage area: at least 12 counties covering mountain counties & Denver metro area

# Governance / Institutional Structure

## Questions to Reach a Conclusion

- ▶ Does AGS corridor anticipate...
  - 4-county corridor structure only
  - 12-county structure with Denver metro
  - > 12-county structure to include Front Range
  - Statewide
  - How to resolve RTD overlap?

# Alignment Questions to Reach a Conclusion

- ▶ Study will recommend carrying three alignment–technology pairs forward:
  - Hybrid alignment, maglev technology
  - High–speed alignment, maglev technology
  - High–speed alignment, rail technology
- ▶ Other technology–alignment pairs may be considered as determined feasible in the future

# Alignment Questions to Reach a Conclusion

- ▶ What is the best minimum operating segment (MOS)
  - PEIS decision framework is Jeffco to Summit at \$5.5 B: is this the best and only next step?
  - Is there a starter segment that is shorter than 50–60 miles that should be the focus of final work?
- ▶ T&R study will consider AGS ridership through sensitivity analysis

# MOS Data (ICS & AGS)

MOS Alternative	CRITERIA			
	CAPEX (B\$)	Ridership	\$/Ride	\$/Rider Mile
<b>MOS #1: Shared Build with RTD North Metro</b>				
• Option 1: North Suburban to Longmont, interoperate with RTD	\$1.15	219,000	\$304	\$12.65
• Option 2 North Suburban to Fort Collins	\$1.90	1,700,000	\$65	\$1.62
• Option 2A North Suburban to Fort Collins (at \$60 M/mile)	\$2.94	1,700,000	\$100	\$2.04
<b>MOS #1A: DIA to FC with transfer to DUS</b>	\$3.00	3,000,000	\$58	\$0.95
<b>MOS #1A: DIA to FC with transfer to DUS (at \$60 m/mile from N. Suburban to FC)</b>	4.04	3,000,000	\$77.11	\$1.26
<b>MOS # 2: Build South Suburban to COS (at \$60/mile, N. Suburban to FC)</b>				
• Option 1 - Preferred: Interoperate with RTD to DUS	\$3.80	2,900,000	\$76	\$1.55
• Option 2 – Forced Transfer at South Suburban	\$3.80	2,640,000	\$83	\$1.70
<b>MOS # 3: DIA to South Suburban to COS</b>				
• Option 1 - Interoperate with RTD East Corridor to DUS	\$5.40	3,862,000	\$81	\$1.16
• Option 2 – Transfer at DIA (allows maglev)	\$5.80	4,032,000	\$83	\$1.09
<b>MOS # 4: DIA to South Suburban (via E-470) to Monument</b>				
• Same as above, but lower cost	\$4.10	3,218,000	\$74	\$1.44
<b>AGS MOS # 1: West Suburban to Breckenridge</b>				
• High Speed Rail	\$19.01	515,000	\$2,135	\$35.13
• High Speed Maglev	\$14.14	616,000	\$1,327	\$22.85
• 120 mph Maglev	\$5.54	491,400	\$652	\$10.63



# MOS Data (AGS & ICS)

- ▶ Front Range MOS's have:
  - Lower \$ Per Rider Mile
    - AGS MOS is 7.5 to 24.7 times higher than average of ICS MOS's
  - Higher Ridership
    - Front Range average is 4.7 to 5.9 times higher than AGS MOS

# Communication Questions to Reach a Conclusion

- ▶ I-70 Coalition Meeting: October 9th
- ▶ CDOT Meetings
  - October TC Workshop: October 17
  - November TC Adoption/Acceptance of Findings: November 21

# Status Update...

- ✓ Technology Feasible? **Yes**
- ✓ Alignment & Land Use Feasible? **Yes**
- Funding & Governance Feasible?
- Is AGS Feasible?

# Next Steps



# Draft Report

- ▶ Review Outline for Report & Plan Set
- ▶ Identify Content Areas Needing Most Review
- ▶ Executive Summary & Press Release as Key Communication Pieces with the Public

# Draft Report – Outline

1. Executive Summary
2. Project Purpose & Need and the CSS Process
3. Operational and Performance Guidelines
4. Selection of Candidate Technologies
5. Development of Alignments
6. Cost Estimation
7. Analysis of Benefits
8. Funding and Financing Options
9. Implementation Plan / Next Steps Plan
10. Conclusions and Recommendations

# PLT Meeting 14

- ▶ September 11, 2013
  - Clear Creek County
- ▶ Topics:
  - Benefit/Cost Analysis
  - Additional Ridership Data
  - Operation & Maintenance Costs
    - Farebox Recovery Ratio