AGS Feasibility Study

PLT Meeting 15

December 13, 2013

Agenda

- Introduction to the Meeting
- Public Comment
- Modeling
  - Follow-Up From September Meeting
  - Results In Context
- Summary of County Meeting Input
- Discussion of Implementation Next Steps
- AGS Study Finalization

Public Comment

Modeling

Modeling

- Market for Shuttle Diversion
  - Identify private carriers w/ I-70 service
  - Website with fixed schedule
  - Trips per day (one-way)
  - Capacity per day (based on vehicle capacity and # trips)
  - Assume 100% capacity
  - Trips per day x capacity per day/week x total weeks

Modeling

- Market for Shuttle Diversion
  - Colorado Mountain Express (CME)
  - Fresh Tracks Transportation
  - Peak 1 Express
  - Summit Express
  - High Country Shuttle
  - Front Range Ski Bus
  - Denver Ski Bus
  - Powderhound Transport* (data not available online)
  - Mountain Shuttle* (data not available online)
- Estimate: ~ 323,000 today
  - Note: Does not include charter service or providers w/o online schedules

Modeling

- Market for Shuttle Diversion
  - Overall bus/van/shuttle market in I-70 corridor: 465,000 to 665,000 annually in 2035
  - Intercity bus diversion: 34,000 to 50,000 (Greyhound only)
  - Bus/van/shuttle diversion: 30,000 to 60,000 additional (part of auto diversion)
  - Total of 64,000 to 110,000: 11% -14% shuttle diversion to AGS

Modeling

- New Model Runs ($0.2625 per mile fare)
  - **HS Maglev:**
    - Breckenridge to Golden MOS – Standalone
    - ECRA to Golden – Full Denver Metro & I-25 system
    - ECRA to DIA MOS – Standalone
    - Keystone to Golden MOS – Standalone
    - Breckenridge to DIA – Full Denver Metro & I-25 system
    - Breckenridge to DIA MOS – Standalone
  - **MS Maglev:**
    - Breckenridge to Golden MOS – Standalone
    - Breckenridge to DIA – Full Denver Metro & I-25 system
  - **High Speed Rail:**
    - Breckenridge to DIA – Full Denver Metro & I-25 system

Modeling

Scenario	Technology	Annual Ridership (million)	Annual Revenue (million)
Breckenridge to Golden MOS – Standalone	HS Maglev	1.54	$20.85
ECRA to Golden – Full Denver Metro & I-25 system	HS Maglev	4.64	$113.91
ECRA to DIA MOS – Standalone	HS Maglev	3.58	$79.04
Keystone to Golden MOS – Standalone	HS Maglev	1.35	$17.14
Breckenridge to DIA – Full Denver Metro & I-25 system	HS Maglev	2.91*	$66.94*
Breckenridge to DIA MOS – Standalone	HS Maglev	1.78*	$28.72*
Breckenridge to Golden MOS – Standalone	MS Maglev	1.26*	$17.24*
Breckenridge to DIA – Full Denver Metro & I-25 system	MS Maglev	2.51*	$56.78*
Breckenridge to DIA – Full Denver Metro & I-25 system	High Speed Rail	2.68*	$58.28*

Modeling – Difference in Technology

Scenario	Technology	Annual Ridership (million)	Annual Revenue (million)
Breckenridge to DIA – Full System	HS Maglev	2.91*	$66.94*
Breckenridge to DIA – Full System	HSR	2.68*	$58.28*
Breckenridge to DIA – Full System	MS Maglev	2.51*	$56.78*
Difference between HS Maglev and HSR		0.23	$8.66
Difference between HS Maglev and MS Maglev		0.41	$10.16
Difference between HSR and MS Maglev		0.17	$1.50

Modeling – Difference in Terminus

Scenario	Technology	Annual Ridership (million)	Annual Revenue (million)
Keystone to Golden – Standalone	HS Maglev	1.35*	$17.14*
Breckenridge to Golden – Standalone	HS Maglev	1.54	$20.85
Breckenridge to DIA – Standalone	HS Maglev	1.78*	$28.72*
Extending terminus west from Keystone to Breckenridge		0.19	$3.71
Extending terminus east from Golden to DIA		0.24	$7.87

Modeling – Difference in Standalone and Full ICS

Scenario	Technology	Annual Ridership (million)	Annual Revenue (million)
Breckenridge to DIA – Standalone	HS Maglev	1.78*	$28.72*
Breckenridge to DIA – Full ICS	HS Maglev	2.91*	$66.94*
Difference between Standalone and Full ICS		1.13	$38.22

AGS Corridor
2035 Maglev Ridership Results

AGS Scenario	ICS Scenario	Annual Ridership	Peak Weekend Day	Off-Peak Weekday
HS Maglev Hybrid Alignment ECRA to Golden	ICS HSR Via C-470/SW Txfr at Golden	6,200,000	42,100	12,700
HS Maglev Hybrid Alignment ECRA to DIA	ICS HSR Via I-70/I-76 Txfr at DIA	4,600,000	31,200	9,400
HS Maglev Hybrid Alignment Stand-Alone Via I-70/I-76	No ICS	3,600,000	24,500	7,400
HS Maglev Hybrid Alignment Breck to DIA Via I-70/I-76	Full ICS	2,900,000	19,700	6,000

AGS Mode Share

- 12,410,000 vehicular trips through EJMT 2035 x 2.42 persons average annual vehicle occupancy
- 30,000,000 total person trips through EMJT 2035

- Total → Eligible = exclude truck and through trips
- 24,000,000 eligible person trips through EJMT 2035

AGS Mode Share

- 1,540,000 person trips by transit (low end – MOS, standalone w/no ICS front range)
  - Breckenridge to Golden
  - 6.4% of eligible person trips divert auto to AGS
- 2,900,000 – 3,600,000 person trips by transit (low end – full corridor w/ or w/o ICS on the front range if I-70/I-76)
  - ECRA to DIA
  - 12-15% of eligible person trips divert auto to AGS
- 6,200,000 person trips by transit (high end-full corridor, full ICS front range using B-2A/C-470 alignment)
  - 26% of eligible person trips divert from auto to AGS

AGS Mode Share

- What is reasonable?
  - No actual US experience to draw on
  - European and Asia are not directly relevant b/c serve different markets (populous urban areas)

  - Why doesn't AGS capture larger share?
    - "Correct value" is unknown since there is no US experience with AGS or HSR (no observed data to calibrate/validate constant)
    - European/Asian HSR experience is not directly relevant – serve different markets
    - Advantage of bus/shuttle is in providing direct service; AGS would require transfers for last mile

AGS Mode Share

- Mode Shares (SDG, 2004)
  - France’s rail share of overall travel market: 9%
  - Spain’s AVE: 38%
  - Great Britain (includes conventional rail): 6.4%
  - Germany’s ICE (includes conventional rail): 8.4%

Round 3 County Meetings

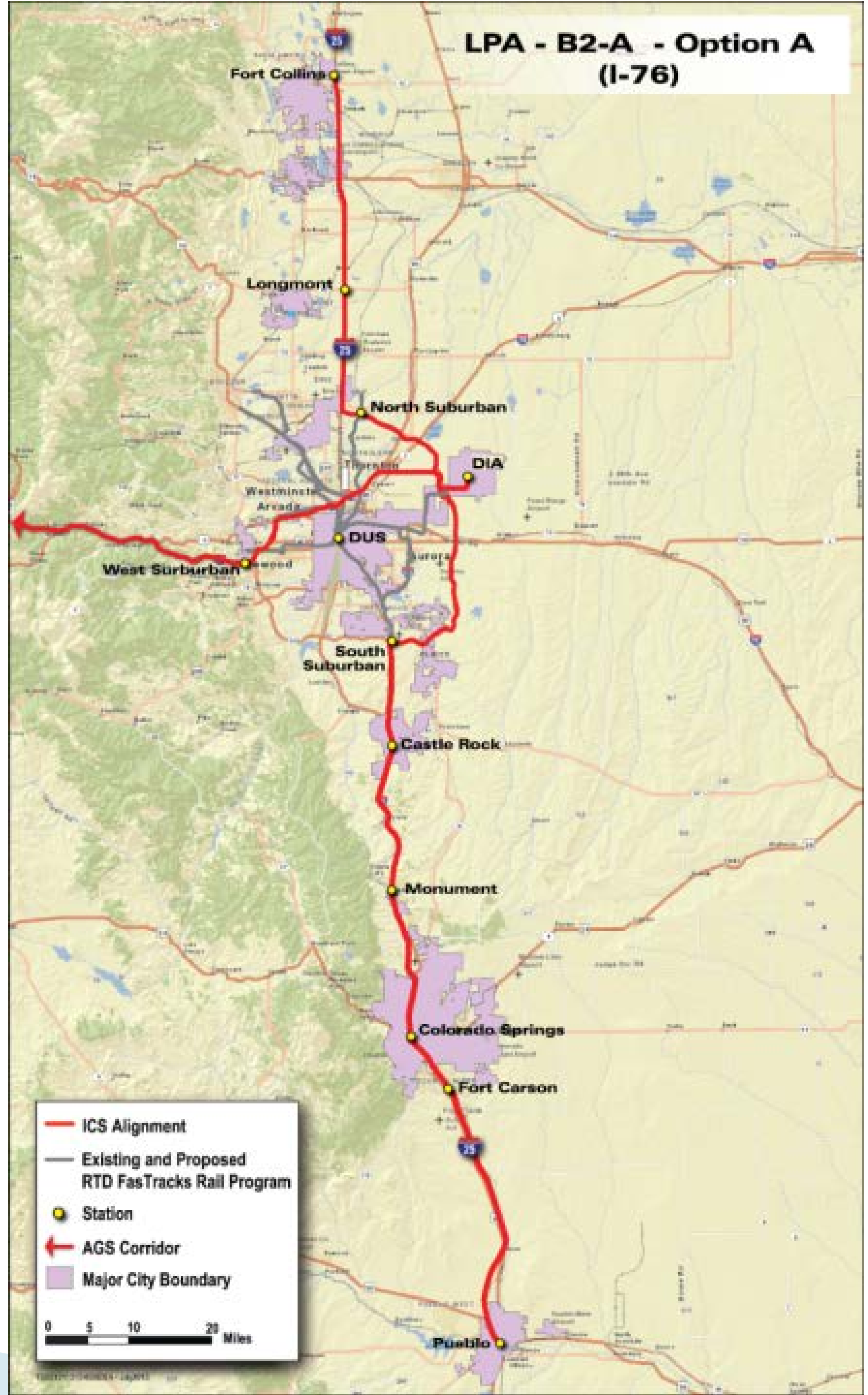
Meeting Purpose

- Highlight overall study findings: technology, alignment, costs ridership estimates for staff/elected officials

- Refine future station locations based on County input to evaluation criteria and study findings.

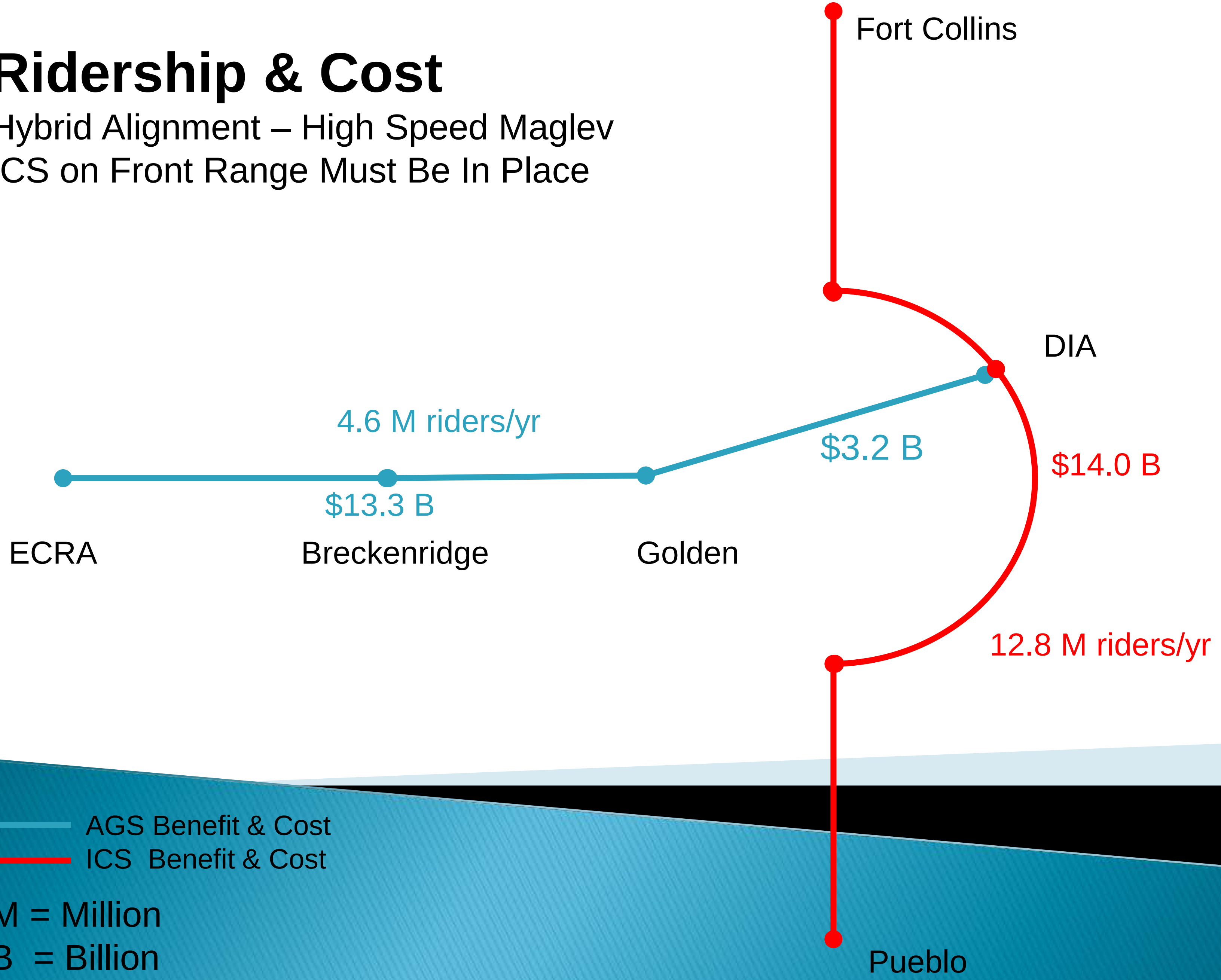
ICS Vision

AGS from I-76 across Denver



Ridership & Cost

Hybrid Alignment – High Speed Maglev
ICS on Front Range Must Be In Place



AGS Benefit & Cost
ICS Benefit & Cost

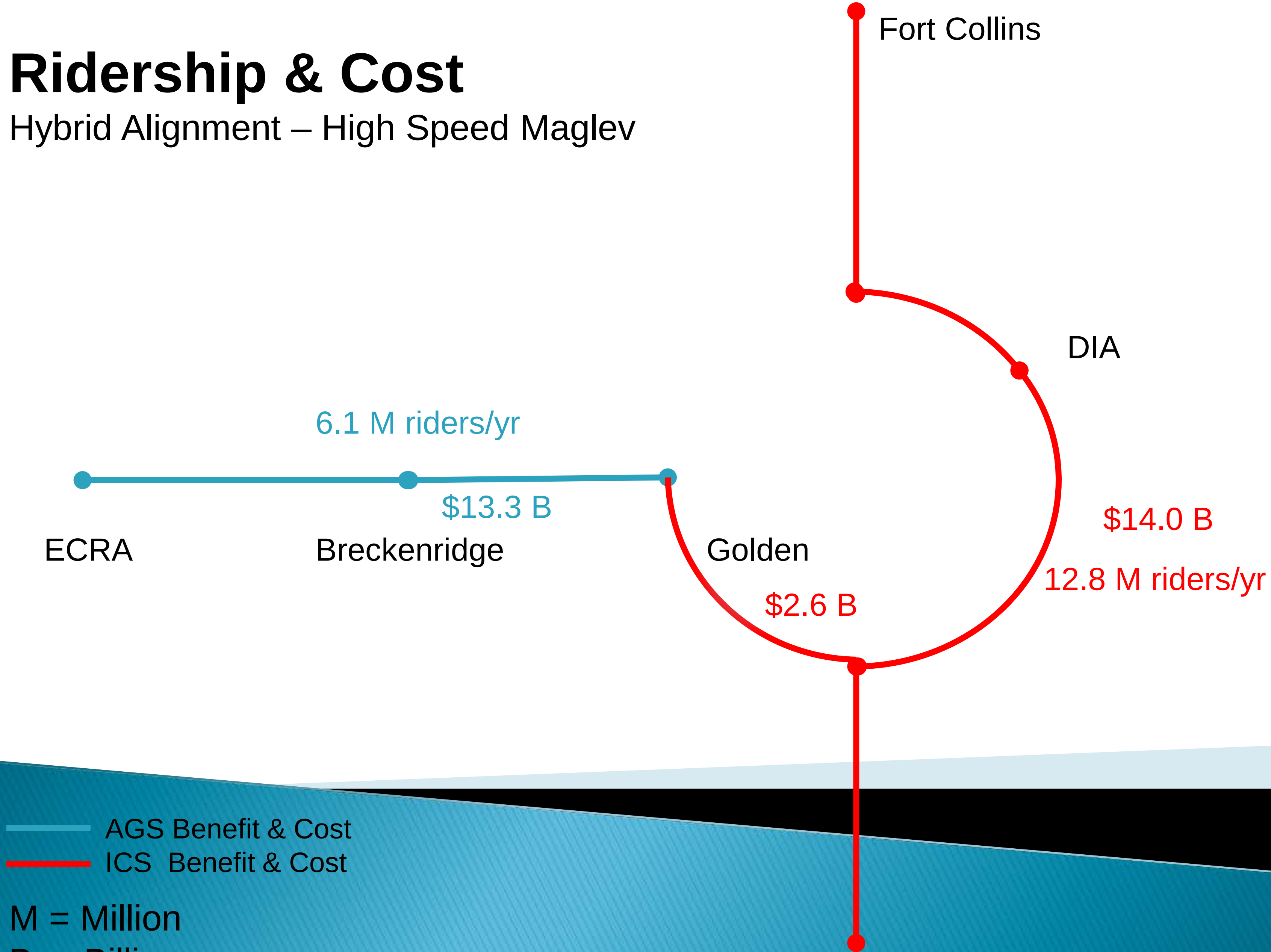
M = Million
B = Billion

ICS Vision

AGS connection from south

Ridership & Cost

Hybrid Alignment – High Speed Maglev



M = Million

B = Billion

Summit County
November 12th, 10:00 AM

- Ridership is driven by resort demand; Keystone, Breckenridge, Copper priority station locations
  - Generally accepted source of ridership
  - Need to divert traffic off I-70
- Silverthorne & Frisco: compatible with increased land use development densities, mix of uses including employment/light industrial and balanced access for residents/employees.
- Stronger ridership and population base locally? Future Summit County growth opportunities?

Eagle County
November 12th, 2:30 PM

- Priority Stations: Vail and ECRA, Traer Creek in Avon
- Highly accepted locations; supportive of development opportunities/densities at Traer Creek & ECRA
- Desire to start line in Eagle County and work way east
- Consideration of costs of maintaining and widening highway? *Expansion may ruin the very thing we are "selling"*
- Looking forward to the opportunity to keep AGS moving forward.

Jefferson County
November 13th, 3:00 PM

- Priority Station: I-70 & 6th Avenue
- Significant opportunity for supporting development; will require improvements to roadway access to the site
- Station must be located as close to W Line station as possible; convenient transfer critical regardless of technology chosen
- Cost is high, but what are the costs of the "do nothing" scenario? Or long-range highway costs?
- Would like to formalize discussions so that land use planning can move forward

Clear Creek County

November 18th, 5:00 PM

- Priority Stations: Idaho Springs, Empire Junction, Georgetown
- Opportunities for development density and mix of uses stronger at Idaho Springs/Georgetown. Access to Gilpin County/gaming market strongest from Idaho Springs. Less out of direction transit connectivity from Idaho Springs location.
- Empire Junction provides best location for transfer center to Winter Park/Grand County.
- Highly supportive of AGS and future station opportunity.

Role of Development in Future Station Funding?

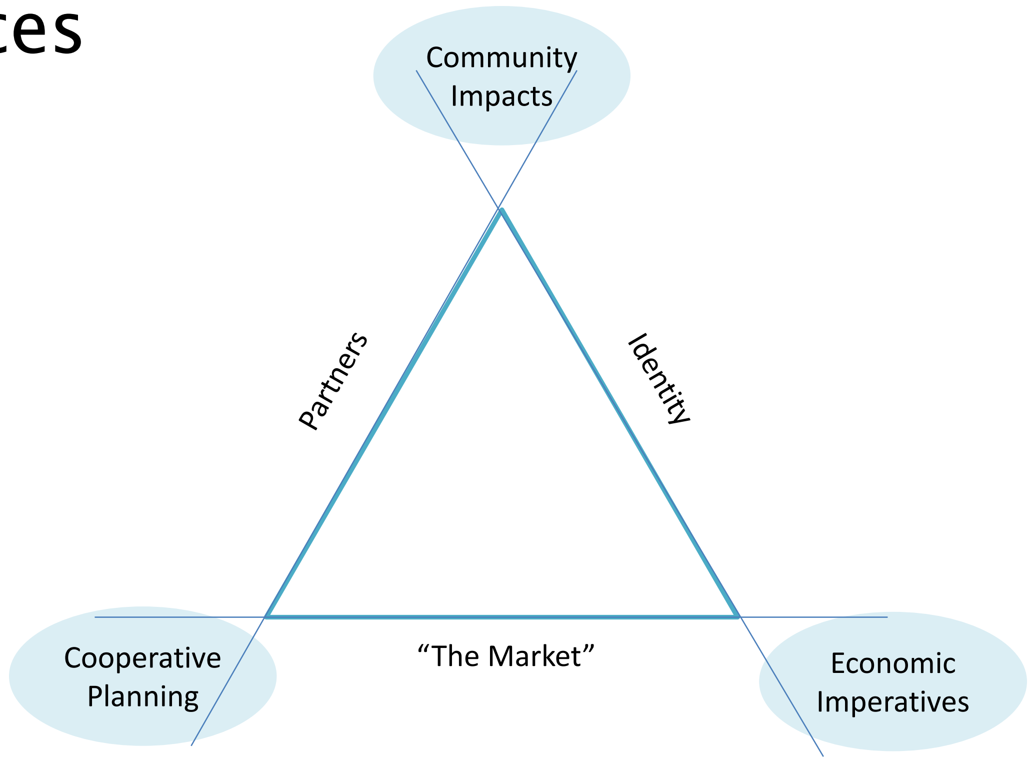
Station Location based on HYBRID MAGLEV ALIGNMENT	Potential Development Acreage	Developable Area (65%) (FAR 3)	Value ($180/sf)
Jefferson County: I-70 & 6th Avenue	50 acres	32.5 acres	$764 million
Clear Creek County: Idaho Springs/Georgetown	10 acres	6.5 acres	$153 million
Summit County: Keystone	8 acres	5.2 acres	$122 million
Breckenridge	8 acres	5.2 acres	$122 million
Copper Mountain	4 acres	2.6 acres	$61 million
Eagle County: Vail	0 acres		
Avon Trader Creek	30 acres	19.5 acres	$458 million
Eagle County Regional Airport	40 acres	26 acres	$611 million
TOTAL	**150 acres**	**97.5 acres**	**$2.3 billion**

Updates to Land Use and Transportation Plans

- Does AGS change or shape the development patterns and character of the corridor?
  - Is significant growth in permanent resident population a part of that future politically?
  - Where is that growth accommodated and for which markets? Idaho Springs, Silverthorne, Eagle
  - Does the local transportation system grow or does congestion increase to drive transit ridership?
  - Do Plan Updates reflect any significant changes?

Business/Resort/Tourism Input

- Positioning I-70 Corridor Communities
- Business/Resort/Tourism Opinions & Preferences



Source:
"Planning for Multi-Season Destination Communities"
SE Group, APA Colorado Conference, October 2013.

Business/Resort/Tourism Input

- Economic Imperatives
  - Who is coming to the I-70 communities today?
  - Who is missing? Who can be attracted tomorrow?
  - What is the "brand" and who *should* be attracted?
  - Diversification of the economy…year-round, non-resort opp'ys.
- Cooperative Planning
  - How to grow/expand from today to tomorrow?
  - Changes to today's way of life are all about the long-term benefit.
- Community Impacts
  - Leverage existing assets…ice center…98% of hockey are locals, 98% of "open skate" participants are tourists
  - Owners of 2nd Homes → More full-time residents?
  - Monitor trends and adapt to change

Economics Benefit Comparison
Patty Silverstein and AGS B/C Analysis

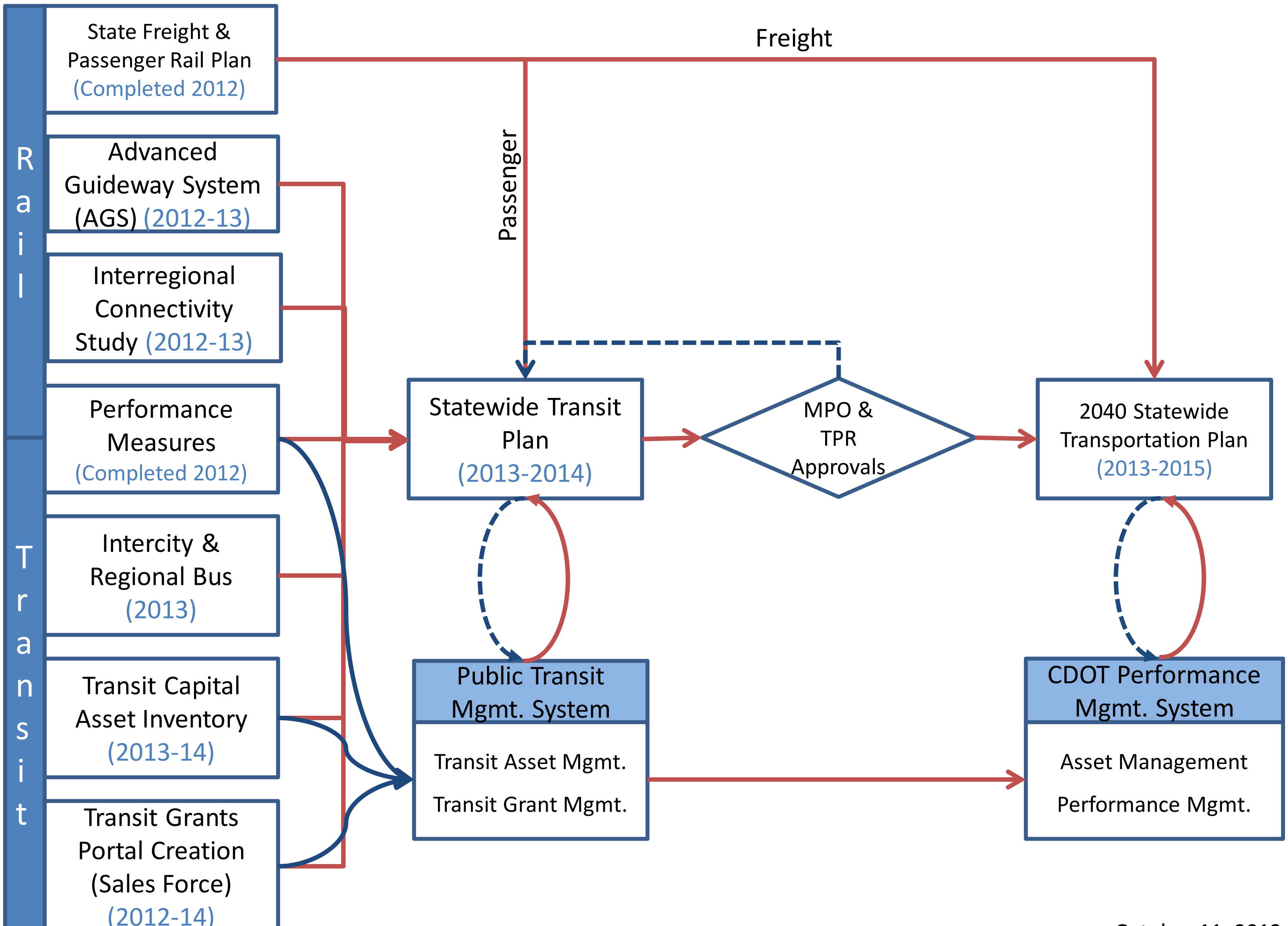
Sector Impacted	Key Assumptions	2007 Study Annual Est. Cost of Not Acting (Millions of 2005$)	Key Measures for ECRA to DIA Maglev ($16.5 B Cost)	2012-13 AGS Study Est. Annual Benefit (Millions of 2013$)
Tourism	1% decrease in tourism spending in the Mountain Resort Region	$25	Jobs created as a result of Operations and Construction (Non-basic / multiplier jobs)	$159
Residents	Value of time lost to congestion based on impacted travelers in Metro Denver, Mountain Resort Region, and the Western Slope	$85	Value of time lost to congestion to in-corridor in I-70 congestion = VMT Savings + VHT Savings + Fatalities Avoided + Pollution Benefits	$87
Business	0.5% loss in productivity and business efficiency in Metro Denver, Mountain Resort Region, and the Western Slope	$728	Increase in Real Estate Value, Farebox Revenue, Operations Jobs, Construction Jobs	$403
Government	Loss of state, county, and city retail sales tax revenue associated with 1% decrease in tourism spending in the Mountain Resort Region	$1	Federal Funding & Multiplier Effect of 50% Federal Funding	$551 - $827
		$839		$1,200 - $1,476

Business/Resort/Tourism Input

- How much does competitiveness and growth depend on the transportation system?
- Is there a clear preference for AGS? What is the opportunity cost of AGS investment?
- Is there a business case to support funding 5–10% of AGS system costs through taxes/fees locally,
    - $11–$23 M/yr for 30 yrs for MOS of $6.8 B
    - $22–$44 M/yr for 30 yrs for full corridor ECRA to Golden

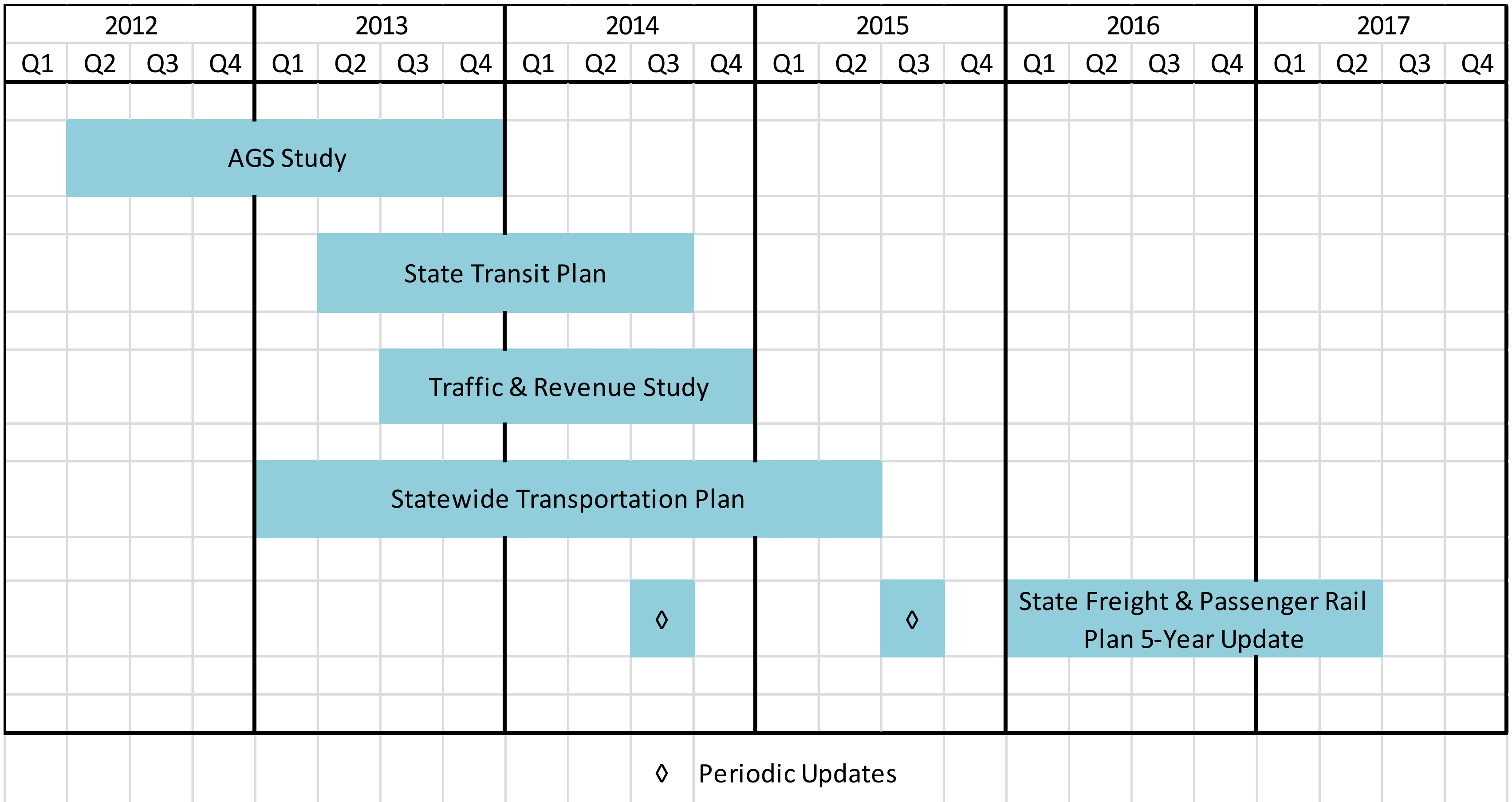
AGS Study Finalization

Transit Studies Flowchart



October 11, 2013

Flowchart with Schedule



Final Push to the End

- Draft Report completed by late December/early January
- AGS PLT Meeting #16 on January 24, 2014
- Transportation Commission workshop/briefing in February 2014
- Transportation Commission acceptance in March 2014