



HDR

N
NELSON
NYGAARD

Regional Alternatives Analysis

Downtown Corridor – Tier 2 Evaluation

September 19, 2011



KCAT
Kansas City Area Transportation Authority

MARC
Mid-America Regional Council



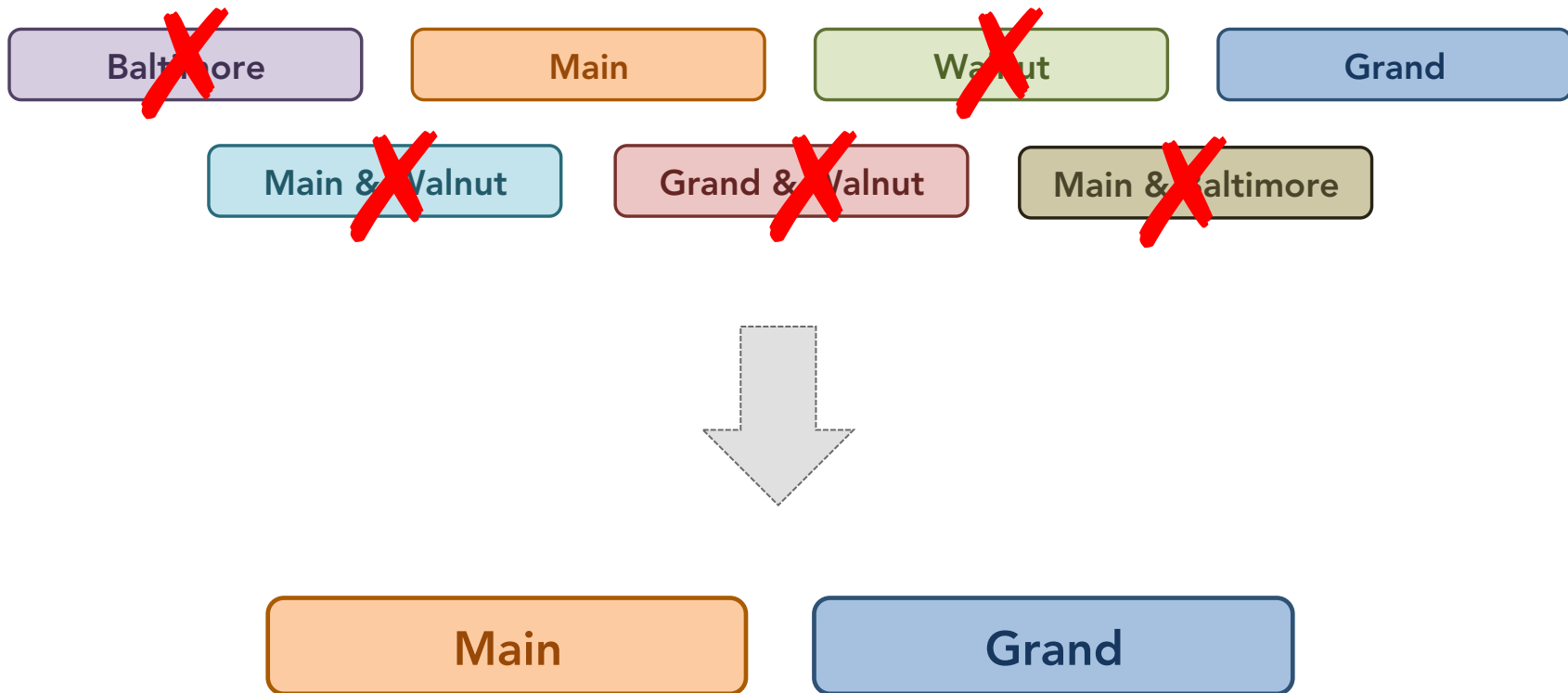
REVIEW OF EVALUATION PROCESS

EVALUATION PROCESS

- Tier 1: Screen Seven Alignment Options into a Short List
- Tier 2: Evaluate Short-Listed Alternatives into Preferred Alternative

REVIEW OF EVALUATION PROCESS

TIER 1 SCREENING RESULTS



TIER 2 ALTERNATIVES

DECISION 1: ALIGNMENT

MAIN STREET

GRAND BOULEVARD

DECISION 2: TECHNOLOGY



STREETCAR



ENHANCED BUS

Each alternative is compared with the **NO BUILD** scenario

TIER 2 ALTERNATIVES

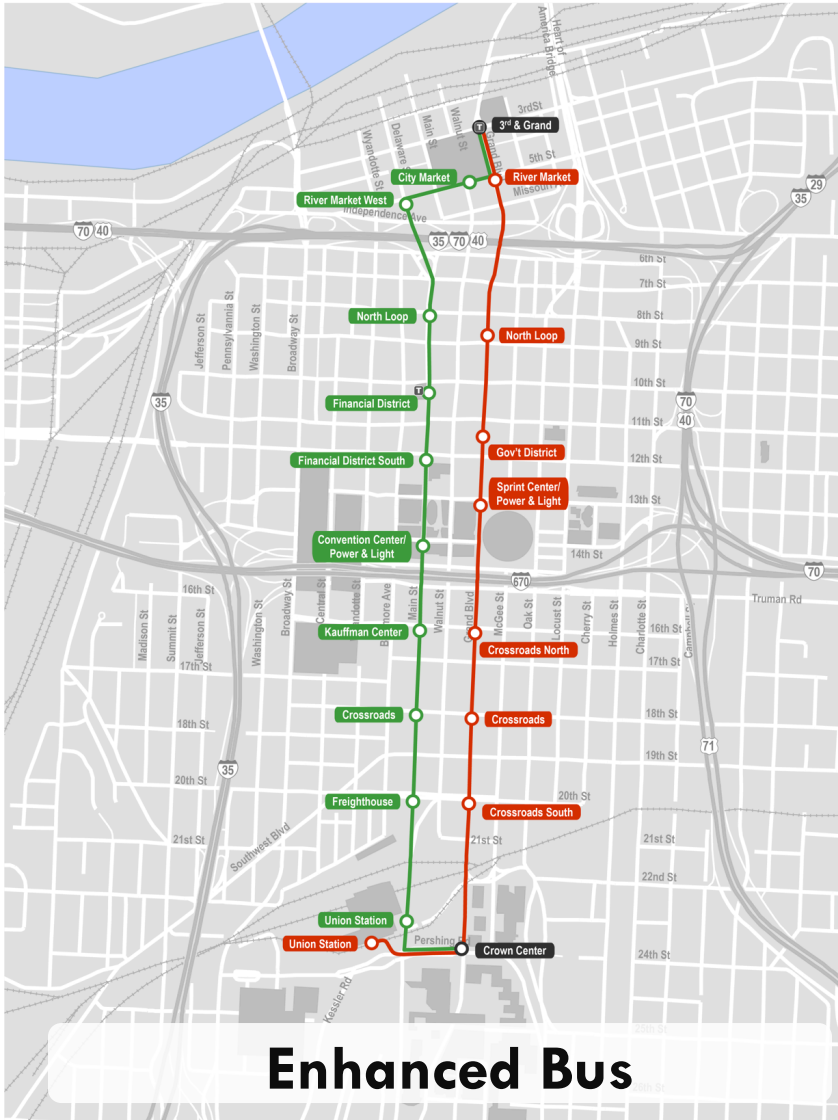
Streetcar (SC)

- Higher capital costs
- Appeals to choice riders
- More comfortable ride
- Larger, roomier vehicle
- Easier to understand and use
- Bicycles accommodated on-board
- More iconic for City
- Has been shown to spur development
- More visual impacts from wires and tracks
- Less flexibility for special events
- No localized emissions

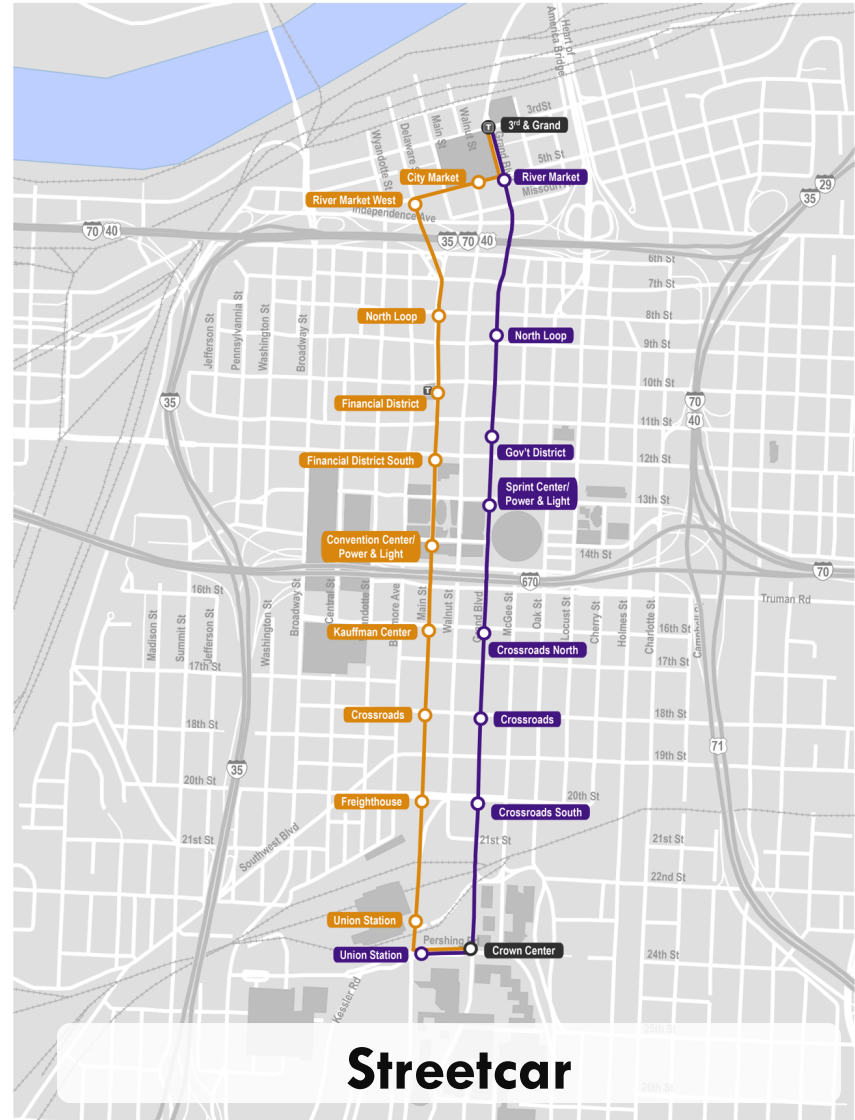
Enhanced Bus (EB)

- Lower capital costs
- Not as attractive to choice riders
- Less comfortable ride
- Bus designs are becoming more attractive
- Less easy to understand and use
- Bicycles located on rack in front of bus
- Does not grab attention
- Has less significant impact on development
- Less visual impacts
- More flexibility for special events
- Localized emissions from buses

TIER 2 ALTERNATIVES



Enhanced Bus



Streetcar

REVIEW OF EVALUATION PROCESS

FOUR THEMES

CONNECT

DEVELOP

THRIVE

SUSTAIN

Each theme has multiple objectives that provide criteria for evaluation.

CONNECT

EVALUATION CRITERIA

– **Connections With Activity Centers**

- Number of Activity Centers within 1/4 Mile of Stations
- Activity Levels (Employees, Households, Hotel Rooms, etc.) within 1/4 Mile of Stations
- Walking Times to Activity Centers

– **Assessment of Pedestrian and Bicycle Environment**

- Review of Pedestrian and Bicycle Connections to/from Stations

CONNECT

ACTIVITY CENTERS—APPROACH

- 13 activity centers as identified in local planning documents
- Walk times estimated using Google Maps
- Employment data from Regional Travel Demand Model
- Household data from 2010 US Census
- Hotel Room data compiled by project team
- Special event venues compiled by project team

CONNECT

BICYCLE/PEDESTRIAN-APPROACH

- Detailed site review of corridors
 - Bike parking
 - Bicycling and walking conditions
 - General traffic and roadway geometrics
- Kansas City Walkability Plan pedestrian level of service measures/criteria:
 - Directness, Continuity, Street Crossings, Visual Interest and Amenities, and Security

CONNECT

CONNECTIONS WITH ACTIVITY CENTERS

- **Main**
 - Directly serves 10th & Main Transit Center
 - Serves more special event and visitor activity centers
- **Grand**
 - Directly serves the Sprint Center
 - Better serves the Government District employment center

Main EB and SC	Grand EB and SC
Directly serves 10 th & Main Closer to Convention Center Closer to Kauffman Center	Directly serves Sprint Center Closer to Government District
All alternatives would directly serve River Market, Power & Light, Crown Center, 3 rd & Grand	

Advantage:

MAIN STREET

CONNECT

ACTIVITY LEVELS

	Main		Grand	
	EB	SC	EB	SC
Housing Units (2010)	3,200	3,200	2,900	2,700
Employees (2005)	47,200	47,200	50,900	50,900
Hotel Rooms (2005)	3,500	3,500	2,500	2,500
Special Event Annual Attendance (2010)	5.7 million	5.7 million	3.3 million	3.3 million

Advantage:

MAIN STREET

CONNECT

BICYCLE & PEDESTRIAN CONNECTIVITY

- Both **Main** and **Grand** have generally good and similar walking and bicycling environments
- No significant distinction between alignments.

Advantage: none

DEVELOP

APPROACH

- “Alignment Influence Zones” based on proximity to corridor
- Evaluated existing conditions and growth trends to create future projections
- Determined build-out capacity for each alternative
 - Vacant and underdeveloped sites
 - Infill and reuse of larger vacant buildings
- Estimated time required to reach “build-out” scenarios
- Compared maximum likely economic development impact
- Crosschecked analysis with development community

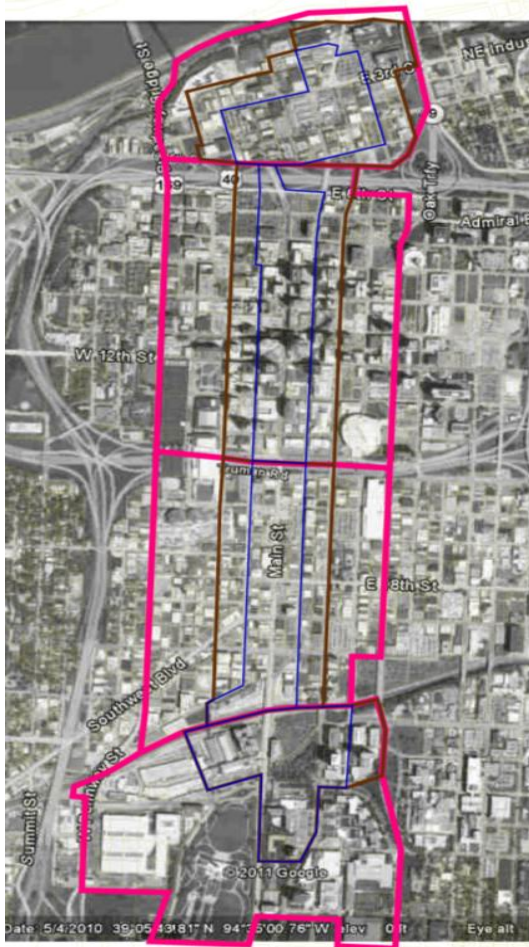
DEVELOP

APPROACH: STREETCAR VS. ENHANCED BUS

- Growth potential reflects national experience and documented evidence, including experience in several communities:
 - Seattle, Washington
 - Portland, Oregon
 - Tacoma, Washington
 - Tampa, Florida
 - Little Rock, Arkansas
- Conversely, experience shows that Enhanced Bus would not induce significant development over base case

ECONOMIC DEVELOPMENT INFLUENCE ZONES

Main Street Influence Areas



Grand Boulevard Influence Areas

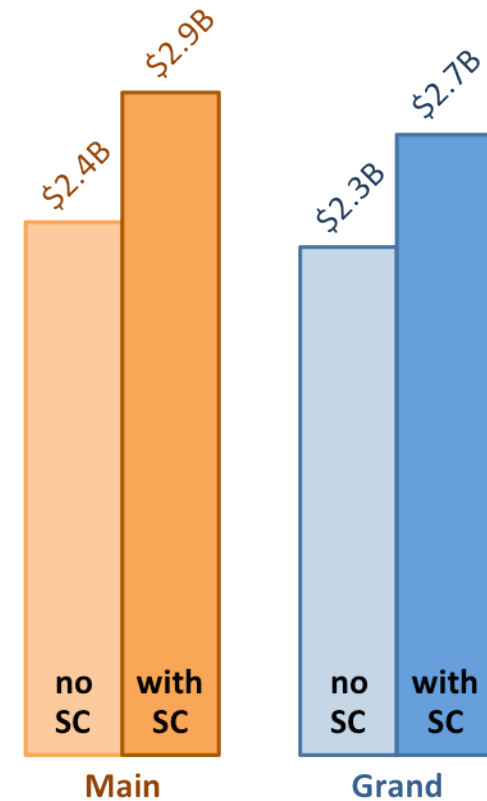


DEVELOP

ECONOMIC DEVELOPMENT POTENTIAL

- **Streetcar** is expected to induce economic growth over the baseline growth to 2025
- **Enhanced Bus** is not expected to induce significant additional (over base case) economic growth
- Projected additional growth is higher on **Main Street** as compared with **Grand Boulevard**

(Uninflated 2010 dollars)



Projected Corridor Land Value in 2025

Advantage:

MAIN STREETCAR

THRIVE

EVALUATION CRITERIA

- Residential and Employment Growth
- Transit Reliability
- Public and Stakeholder Input

THRIVE

APPROACH

- Employment data is for 2005 Base Year (MARC travel demand model)
- Population is for 2010 Base Year (Census 2010)
- Transit reliability based on street closure data
- Public and stakeholder support is based on comments received at Public Open Houses and other sources

THRIVE

RESIDENTIAL AND EMPLOYMENT ACTIVITY

- **Main:**
 - Serves more residents, housing units, hotel rooms
 - Has higher special event attendance
- **Grand:**
 - Serves greater employment (within 1/4 mile)

	Main EB and SC	Grand EB and SC
Employees within 1/4 mile (2005)	47,200	50,900
Population within 1/4 mile (2010)	4,400	4,100/3,700
Housing Units (2010)	3,900	3,100
Hotel Rooms (2010)	3,500	2,500
Retail Sales Within 1 Block (2010)	\$93 million	\$97 million
Corridor Property Market Value (2010)	\$1.59 billion	\$1.57 billion

Advantage: none

THRIVE

TRANSIT RELIABILITY

- **Main** had no scheduled street closures in 2011
- **Grand** had 21 scheduled street closures in 2011

number of street closures (6 months, 2011)

	Main EB and SC	Grand EB and SC
Partial Day	0	5
Full Day	0	16
Total	0	21

Advantage:

MAIN STREETCAR

MAIN ENHANCED BUS

THRIVE

PUBLIC AND STAKEHOLDER SUPPORT

- Overwhelming support for **Streetcar** over **Enhanced Bus** at public forums
- Most liked the simplicity of both alignments
- Development stakeholders feel short term market is from residents, Downtown visitors and guests, Main Street serves these folks better
- **Main** received more numerous and vocal support
- **Grand** received significant opposition from some key stakeholders

Advantage:

MAIN STREETCAR

SUSTAIN

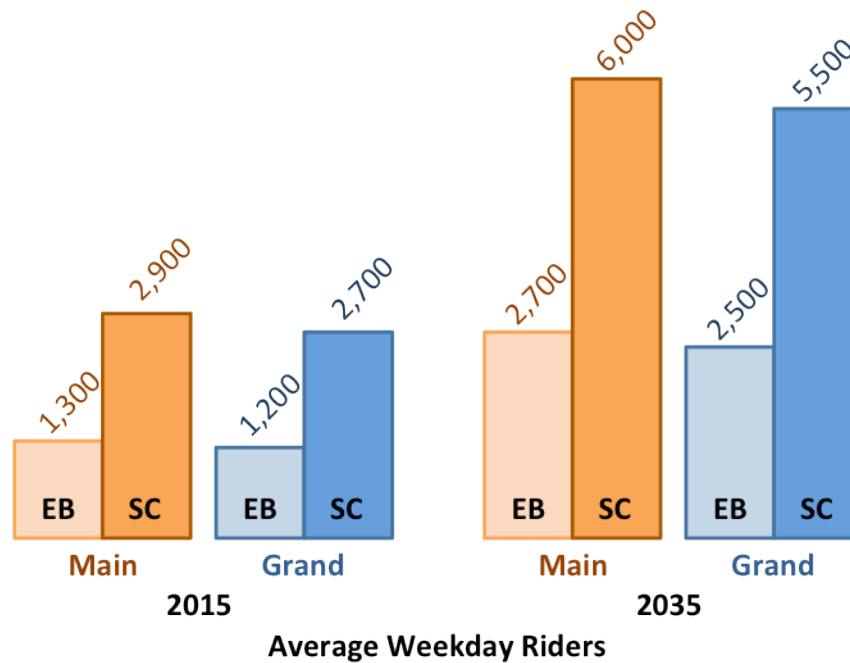
EVALUATION CRITERIA

- Ridership
- Capital and Operating Cost
- Transit User Benefits/Service Effectiveness
- Environmental and Historic Resources

SUSTAIN

RIDERSHIP PROJECTIONS

- **Streetcar** ridership significantly higher than **Enhanced Bus**
- **Main** ridership approximately 9% higher than **Grand**

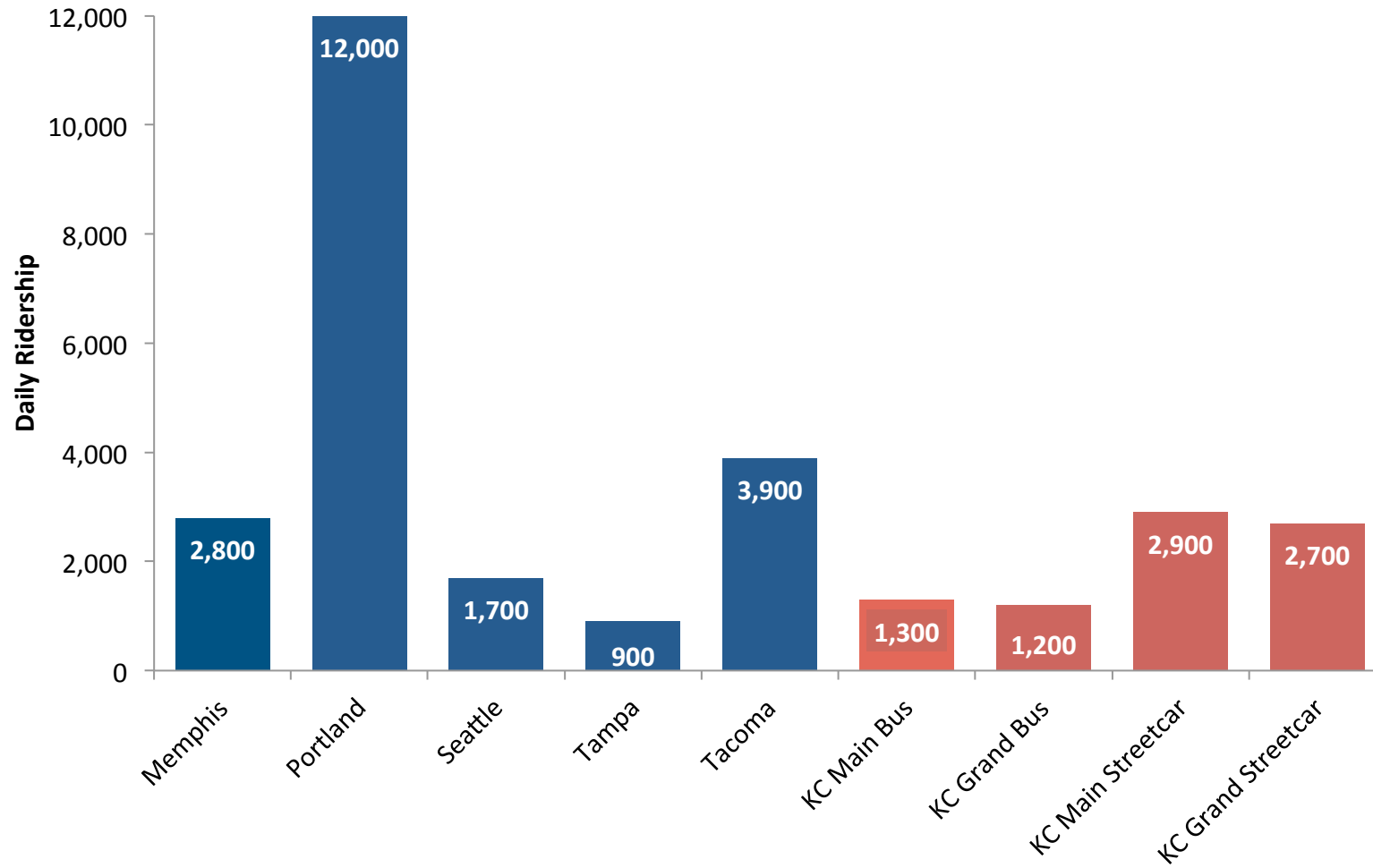


Advantage:

MAIN STREETCAR

SUSTAIN

PEER SYSTEM RIDERSHIP LEVELS



SUSTAIN

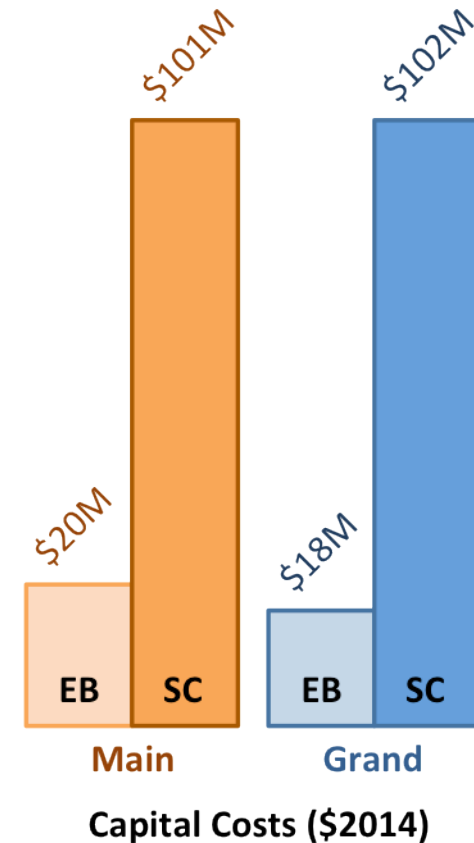
CAPITAL COST APPROACH

- Costs are inclusive of construction, vehicles, right of way, maintenance facility, professional services, plus contingency
- Estimates were developed in 2011 dollars and escalated (3.5%) to 2015
- Design approach intended to keep things simple
- Cost basis is from other built streetcar and bus systems both nationally and locally

SUSTAIN

CAPITAL COSTS

- Streetcar five times more expensive than Enhanced Bus:
\$100 m vs \$20 m
 - Track & electric power systems
 - Vehicles (\$4.3 m vs \$500,000)



Advantage:

ENHANCED BUS

SUSTAIN

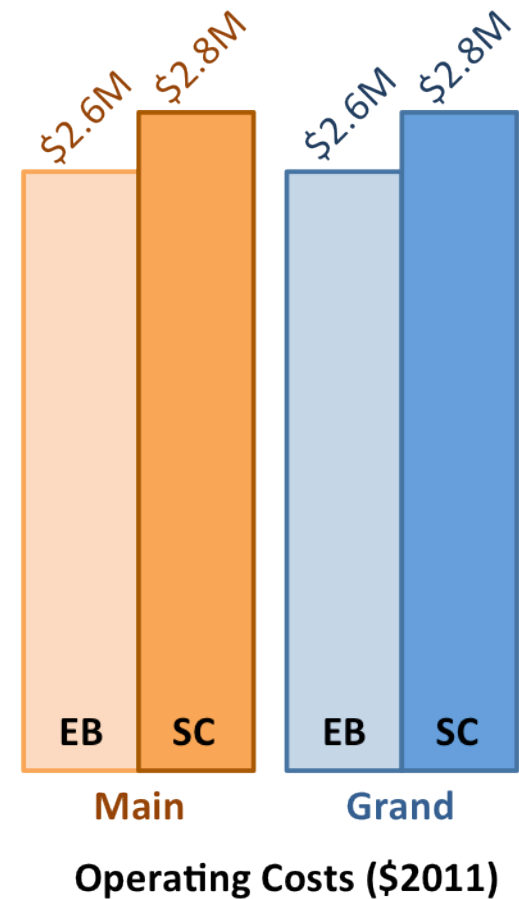
OPERATING COST APPROACH

- Operating Hours
 - 6 am – 12 am Monday – Thursday
 - 6 am – 2 am Friday and Saturday
 - 8 am – 9 pm Sundays
- Streetcar operates with 3 vehicles; Enhanced Bus with 4 vehicles
 - Due to slightly longer dwell times on Enhanced Bus
- Monday-Thursday every 10 minutes day; 20 minutes at night
- Friday-Saturday every 10 minutes all day
- Sunday every 20 minutes all day
- Exception is Main Street Streetcar
 - 11/22 minutes

SUSTAIN

OPERATING COSTS

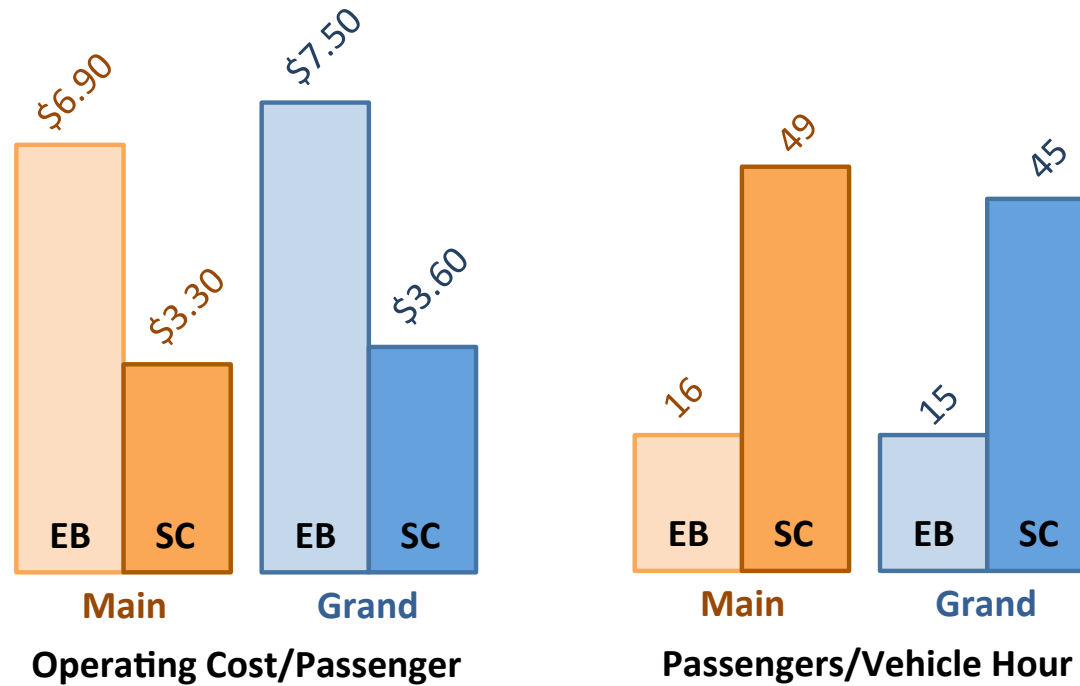
- Streetcar slightly more expensive—higher vehicle and non-vehicle maintenance costs
- Bus cost not significantly lower because more vehicles in operation



Advantage: none

SUSTAIN

SERVICE EFFECTIVENESS



Advantage:

MAIN STREETCAR

SUSTAIN

ENVIRONMENTAL AND HISTORIC RESOURCES

- Pre-NEPA analysis indicates no significant impacts on either alignment

Advantage: none

EVALUATION FINDINGS

	Alignment	Mode
Activity Center Connections:	MAIN	none
Activity Levels:	MAIN	none
Bicycle & Pedestrian Connectivity:	none	none
Existing Economic Activity:	none	none
Economic Development Potential:	MAIN	STREETCAR
Residential & Employment Activity:	MAIN	STREETCAR
Transit Reliability:	MAIN	none
Public & Stakeholder Support:	MAIN	STREETCAR
Ridership Projections:	MAIN	STREETCAR
Capital & Operating Costs:	none	ENHANCED BUS
Service Effectiveness:	MAIN	STREETCAR
Environmental & Historic Resources:	none	none

EVALUATION RESULTS

RECOMMENDED ALTERNATIVE:

MAIN STREET

STREETCAR

