We envision a Treasure Valley where quality of life is enhanced and communities are connected by an innovative, effective, multi-modal transportation system.
PHOTO CREDITS (TOP TO BOTTOM)
“ValleуRide Transit”
COMPASS
“North American Bus Industries Demonstration Bus”
http://www.flickr.com/photos/acnatta/
“Tacoma Streetcar”
http://www.flickr.com/photos/neitech/
“Albuquerque RailRunner”
http://www.flickr.com/photos/mister_goleta/

DATA SOURCES:
1. APTA, http://www.heritagetrolley.com
2. TCRP 90 - Bus Rapid Transit,
http://www.lightrail.com
Cities.”
yogy.”
Section 2

TRANSIT TECHNOLOGIES
Grouped by Families

Rideshare
- vanpool
- carpool

Bus
- BRT
- express bus

Streetcar
- modern streetcar
- heritage trolley

Light Rail
- light rail

Commuter Rail
- locomotive
- Diesel Multiple Unit

Increasing capacity
PRODUCTIVE CAPACITY
of US and Canadian Transit Modes

This graph compares typical travel speed and capacity ranges for various transit modes on different types of facilities. The travel speeds include stops; the speed ranges reflect differences in average stop spacing, dwell times, route geometry characteristics, traffic congestion, and other factors.

Note: Speed ranges primarily reflect differing assumptions on stop spacing and dwell time. Capacity ranges primarily reflect differing assumptions for dwell time and number of cars per train. Peak hour factor and passenger loading assumptions reflect TCQSM recommendations.

‡ As adapted from:
- Transit Capacity and Quality of Service Manual - 2nd Ed.
- "TCQSM speed and capacity estimation procedures"
- TCRP Report 13 (R5)
- Transportation Planning Handbook (R2)
- Characteristics of Urban Transportation Systems (R1)
Section 2

A COST-EFFECTIVE TRANSIT SYSTEM and the “New Starts” Funding Program

New Starts is a grant program managed by the Federal Transit Administration (FTA). It funds transit projects, specifically “fixed guideway” transit. This program funds projects that typically serve the highest volume, most congested corridors or areas in a region.

Unlike some grant programs which distribute funding equitably based on population, New Starts is competitive. This means that projects compete against each other for funding without regard to region or population. A project in Idaho would compete with projects in much more populous states, California, New York, Texas, etc. The process to qualify for funds is long, rigorous and subject to substantial scrutiny.

FTA scores New Starts projects using numerous criteria shown in the table below. The purpose of the scoring criteria is to encourage submission of projects that are efficient and to ensure that those projects that have the most favorable cost-benefit ratio receive funding. The development of an efficient transportation and public transit system is our goal. This is the case for all service and the entire region, regardless of whether or not New Starts funding is relevant for a particular project or corridor.

“A fixed guideway project is defined as a mass transportation facility which utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles, or uses a fixed catenary system and a right-of-way usable by other forms of transportation. Fixed guideway systems include, but are not limited to heavy rail, light rail, commuter rail, automated guideway transit, streetcar, ferry boat service and fixed guideway facilities for buses (such as bus rapid transit) and other high occupancy vehicles. (See “Transit Technologies on page 102 for more detail).
<table>
<thead>
<tr>
<th>Land Use Rating Category and Associated Factors</th>
<th>Supporting Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. EXISTING LAND USE</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Existing Land Use | • Existing corridor and station area development  
• Existing corridor and station area development character  
• Existing station area pedestrian facilities, including access for persons with disabilities  
• Existing corridor and station area parking supply |
| **II. TRANSIT-SUPPORTIVE PLANS AND POLICIES** | |
| Growth Management | • Concentration of development around established activity centers and regional transit  
• Land conservation and management |
| Transit-Supportive Corridor Policies | • Plans and policies to increase corridor and station area development  
• Plans and policies to enhance transit-friendly character of corridor and station area development  
• Plans to improve pedestrian facilities, including facilities for persons with disabilities  
• Parking policies |
| Supportive Zoning Regulations Near Transit Stations | • Zoning ordinances that support increased development density in transit station areas  
• Zoning ordinances that enhance transit-oriented character of station area development and pedestrian access  
• Zoning allowances for reduced parking and traffic mitigation |
| Tools to Implement Land Use Policies | • Outreach to government agencies and the community in support of land use planning  
• Regulatory and financial incentives to promote transit-supportive development  
• Efforts to engage the development community in station area planning and transit-supportive development |
| **III. PERFORMANCE AND IMPACTS OF POLICIES** | |
| Performance of Land Use Policies | • Demonstrated cases of development affected by transit-supportive policies  
• Station area development proposals and status |
| Potential Impact of Transit Investment on Regional Land Use | • Adaptability of station area land for development  
• Corridor economic environment |
| **IV. OTHER LAND USE CONSIDERATIONS** | |
| Exceptional Examples | • Historic, environmental, community preservation, etc. |

Table from: Federal Transit Administration, Office of Planning, Guidelines and Standards for Assessing Transit-Supportive Land Use
RIDESHARE
Carpool & Vanpool
Rideshare Carpool & Vanpool

Definition: Vanpools & carpools are an element of the transit system that allow groups of people to share a vehicle to achieve savings in fuel and vehicle operating costs. The key concept is that people share the ride from home or one or more common meeting locations & travel together to a common destination or work center. Pool vehicles may be provided by individuals, individuals in cooperation with various public & private support programs, through a program operated by or on behalf of an element of government, or a program operated by or on behalf of an employer.

Typically, the most unused capacity available in a congested roadway is in the empty seats of vehicles. That capacity is already “in service” but otherwise unoccupied.

Work trips in the Treasure Valley = average of 1.1 persons/vehicle*

ACHD Commuterride Facts:
- Oldest multi-employer vanpool program in the nation
- Runs longest running single vanpool route in the US (Southwest Boise to Downtown)
- More info: http://www.commuterride.com

Status in the US
Abundant examples in cities and regions across the United States

Projected Costs per Mile
Costs of operating similar to the cost of operating a private vehicle (as some of them are) with costs divided by the number of pool members

Service Type/Land Use Setting
Falls between private vehicles and public transit

Average Operating Speed
Varies

Station Type
Common meeting areas (i.e. park and ride lots) used for pool members to congregate**

Distance Between Stations
NA

Service Frequency
NA

Alignment
In the same right of way as any automobile

Right of Way Width
NA

Turning Radius
NA

Vehicle Length
Private autos or 15 passenger vans

Typical Power Source
NA

Can Operate Concurrently with Freight Service?
NA

*From “2002 Treasure Valley Household Characteristics Study”
**The end of the trip is typically one or two common workplaces which could have preferential parking for rideshare vehicles.

‡ As adapted from http://en.wikipedia.org/wiki/Vanpool
Section 2

TROLLEY Bus

San Francisco, California
http://www.flickr.com/photos/skew-t/173526131

Seattle, Washington
http://www.flickr.com/photos/kevin_r_boyd/
## Trolley Bus

**Definition:** A rubber-tired electrically powered passenger vehicle operating on city streets and drawing power from overhead lines with trolleys (APTA\(^\ddagger\)).

### Status in the US: Currently in Use
- San Francisco, CA
- Seattle, WA
- Boston, MA
- Dayton, OH
- Vancouver, BC

### Projected Costs per Mile
$1.3 million for overhead alone on top of similar costs for buses\(^1\)

### Service Type
Best for, and often used in, hilly terrain

### Average Operating Speed
Same as bus

### Station Type
Sidewalk Sign

### Distance Between Stations
Same as bus

### Service Frequency
Same as bus

### Cost per Mile
- $1.3 million for overhead alone
- Similar costs for buses

### Characteristics
- Good for hilly terrain
- Low noise level
- No emissions

---

\(\ddagger\) As adapted from [http://www.apta.com/research/stats/bus/definitions.cfm](http://www.apta.com/research/stats/bus/definitions.cfm)

\(^1\) [http://www.apta.com/research/stats/bus/busmktlength.cfm](http://www.apta.com/research/stats/bus/busmktlength.cfm)

---

\(^1\) However, heaper operating costs than regular buses (25 cents/mile compared to 75 cents/mile).
Section 2

SHUTTLE Bus

Los Angeles DASH bus
http://upload.wikimedia.org/wikipedia/commons/f/f9/Ladot-dash2.jpg

Los Angeles DASH bus
http://www.flickr.com/photos/beancounter/99917133/
**Shuttle Bus**

**Definition:** A small bus that provides localized service.

### NOTABLE CHARACTERISTICS

- Provides neighborhood service that feeds into the larger system.
- Good for dense urban environments where a tight turning radius is required

<table>
<thead>
<tr>
<th>Status in the US: Currently in Use</th>
<th>Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently operating in Los Angeles as the “DASH” system.¹</td>
<td>In street with traffic, no grade separation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Projected Costs per Mile</th>
<th>Right of Way Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varies</td>
<td>Street width</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Turning Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local service</td>
<td>Shorter than a typical bus due to the shorter length of the vehicle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Operating Speed</th>
<th>Vehicle Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as bus</td>
<td>Approximately 30 feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Station Type</th>
<th>Typical Power Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as bus</td>
<td>Propane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance Between Stations</th>
<th>Can Operate Concurrently with Freight Service?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varies, but typically shorter distances between stations than a typical bus</td>
<td>NA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as bus</td>
</tr>
</tbody>
</table>

---

¹DASH originally stood for Downtown Area Short Hop.
Section 2

EXPRESSION Bus

ValleyRide Bus Service
(Note: Some ValleyRide intercounty routes are running near or at capacity)

Las Vegas Express
http://www.flickr.com/photo_zoom.gne?id=105678016&size=0

Metro Express Bus
http://www.flickr.com/photo_zoom.gne?id=504126030&size=1
Express Bus

Definition: An Express Bus system is a bus service that is intended to run faster than normal bus lines, typically with very limited stops. These buses usually run between the downtown sections of cities and the more residential suburbs.

<table>
<thead>
<tr>
<th>Status in the US</th>
<th>Any city with a bus system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected Costs per Mile</td>
<td>$1 - 2 Million</td>
</tr>
<tr>
<td>Service Type/Land Use Setting</td>
<td>Regional</td>
</tr>
<tr>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td>Average Operating Speed</td>
<td>15-19 MPH</td>
</tr>
<tr>
<td>Station Type</td>
<td>Sidewalk Sign</td>
</tr>
<tr>
<td></td>
<td>Platform</td>
</tr>
<tr>
<td>Distance Between Stations</td>
<td>Limited stops along normal bus routes</td>
</tr>
<tr>
<td>Service Frequency</td>
<td>10 - 20 Minutes</td>
</tr>
</tbody>
</table>

Alignment
In street with traffic

Right of Way Width
Street Width

Turning Radius
33 - 50 feet

Vehicle Length
30 - 50 feet

Typical Power Source
Diesel

Can Operate Concurrently with Freight Service?
NA

‡ As adapted from “Transit Technologies Worksheet” by Reconnecting America
http://www.reconnectingamerica.org/public/download/bestpractice175

• Some mechanisms can be implemented with express service to improve performance such as signal preemption and preferential treatment at intersections (queue jump lanes).
• Can be considered a bridge between conventional bus service and Bus Rapid Transit, particularly when combined with the aforementioned techniques.
• Typically used during peak periods, such as commute hours.
Section 2

**BUS RAPID TRANSIT (BRT)**

Phoenix BRT
http://www.flickr.com/photos/427731511/size=o

Eugene EmX
http://www.flickr.com/photos/8504149@N06/1152802867/

Las Vegas Max
http://www.flickr.com/photos/neitech/
**Bus Rapid Transit (BRT)**

**Definition:** Bus Rapid Transit (BRT) is a relatively new umbrella term for urban mass transportation services utilizing buses to perform premium services on existing roadways or dedicated rights-of-way. Operations of BRT systems can mimic rail operations with off board fare collection, level boarding and increased vehicle capacity.

### Status in the US: Rising Interest

- Las Vegas, NV (in service)
- Salt Lake City, UT (planning stages)
- Phoenix, AZ (in service)
- Eugene, OR (in service)

### Projected Costs per Mile

$4 - 40 Million

### Service Type/Land Use Setting

- Regional
- Urban

### Average Operating Speed

8 - 12 MPH

### Station Type

- Sidewalk Sign
- Station
- Platform

### Distance Between Stations

0.25 - 2 Miles

### Service Frequency

3 - 30 Minutes

### Alignment

- HOV lanes or separated right of way in median or on curb

### Right of Way Width

- 12 Feet (Pittsburgh single lane)
- 28 Feet (Pittsburgh double lane)

### Turning Radius

40 - 70 Feet

### Vehicle Length

30 - 50 Feet

### Typical Power Source

- Diesel
- Electric

### Can Operate Concurrently with Freight Service?

NA

---

*As adapted from “Transit Technologies Worksheet” by Reconnecting America
http://www.reconnectingamerica.org/
public/download/bestpractice175

‡ BRT is an extremely flexible vehicle that is applicable in a variety of environments: dedicated right of way, mixed with traffic (with and without preemption mechanisms), and a variety of station spacing. This flexibility is reflected in its operating characteristics.
Section 2

HERITAGE Trolley

Photo by APTA, San Francisco F Line
http://heritagetrolley.org

Galveston Trolley
https://www.utmb.edu/psychology/images/GalvestonTrolley.JPG

Photo by Jeremy Atherton, Memphis Main Street Trolley Line
http://www.commons.wikimedia.org
Heritage Trolley

Definition: The terms “Heritage Trolley” and “Vintage Trolley” are used to describe modern use of trolleys of a design dating from roughly 1900 to 1950. The terms can be used to refer either to a replica car that more or less accurately reproduces a trolley from the first half of the 20th century, or to an original preserved car restored to accurate or nearly accurate standards (APTA).

### Status in the U.S.: Currently Operating in a Variety of Cities
- New Orleans (operating)
- Memphis (operating)
- Little Rock (operating)
- Kenosha (operating)
- Galveston (operating)

### Projected Costs per Mile
$2 - 12 Million

### Service Type/Land Use Setting
Urban Circulator (as opposed to corridor service)

### Average Operating Speed
8-12 MPH

### Station Type
- Sidewalk Sign Station
- Platform

### Distance Between Stations
Approximately 0.25 Miles

### Service Frequency
8 - 15 Minutes

### Alignment
In the street with traffic with no grade separation

### Right of Way Width
- 19 - 24 (double track)
- 11 - 13 (single track)

### Turning Radius
40 - 50 feet

### Vehicle Length
35 - 50 feet

### Typical Power Source
Electric

### Can Operate Concurrently with Freight Service?
No

‡ As adapted from “Transit Technologies Worksheet” by Reconnecting America
http://www.reconnectingamerica.org/public/download/bestpractice175

• “Achieving Americans with Disabilities Act” compliance with this type of vehicle typically requires modification.
Section 2

MODERN Streetcar

Tacoma Streetcar
http://www.flickr.com

PDX Streetcar
http://www.flickr.com/photos/the_impression_that_i_get/539261839/

Tucson (planning stages)
http://www.tucsontransitstudy.com

8 units/acre

Secondary

Primary

Premium
Modern Streetcar

Definition: The US term “streetcar” is generic to most forms of common forms of common carrier rail transit that runs or has run on streets, providing a local service and picking up and discharging passengers at any street corner, unless otherwise marked.

Status in the U.S: Gaining Popularity
Portland (in use)
Seattle (design phase)
Washington DC (under construction)
Tacoma, WA (planning stages)

Projected Costs per Mile**
$10 - 25 Million

Service Type/Land Use Setting
Urban Circulator (as opposed to corridor service)

Average Operating Speed
8-12 MPH

Station Type
Sidewalk Sign
Platform

Distance Between Stations
Approximately 0.25 Miles

Service Frequency
8-15 Minutes

Alignment
In street with traffic with no grade separation

Right of Way Width
19-24 Feet (double track)
11-13 Feet (single track)

Turning Radius
50-100 Feet

Vehicle Length
40 - 80 feet per car

Typical Power Source
Electric

Can Operate Concurrently with Freight Service?
NA

---

† As adapted from “Transit Technologies Worksheet” by Reconnecting America

‡ Modern Streetcar and Light Rail systems are often lumped in with road and utility reconstruction, increasing the costs.
Section 2

LIGHT Rail

TRAX light rail

Phoenix Metro
http://www.flickr.com/photos/crunchypickle/473150501/

Houston light rail
http://www.flickr.com/photos/zephrene/
Light Rail Transit

Definition: The term light rail refers more to this mode's relative simplicity and operational flexibility than to actual vehicle weight or cost. With an overhead power supply, light rail systems can operate either in dedicated right-of-way or mixed traffic and widely ranging alignment configurations (FTA).

Status in the US: Accepted Mode
Salt Lake City, UT (in service)
Denver, CO (in service)
Minneapolis, MN (in service)
Dallas, TX (in service)
Houston, TX (in service)

Projected Costs per Mile
$20 - 60 Million ($56m)

Service Type/Land Use Setting
Regional
Intra-urban

Average Operating Speed
20-60 MPH

Station Type
Sidewalk Sign
Station
Platform

Distance Between Stations
>1 Mile

Service Frequency
5-30 Minutes

‡ As adapted from “Transit Technologies Worksheet” by Reconnecting America
http://www.reconnectingamerica.org/public/download/bestpractice175

NOTABLE CHARACTERISTICS
• A dominant mode pre-WWII (think “interurban”)
• Approximately 14 new lines since 1980
• Most flexible steel wheel technology: can operate in mixed traffic, pedestrian mall, tunnels, elevated, exclusive ROW, etc.
• Grade separations are required at roadway crossings
• Typically serves commute corridors
• Higher capacity service that can act as a network spine
• Ability to be a catalyst for development within nodes along a corridor

Alignment
Aligned center or side of street corridor on separate right of way

Right of Way Width
19-33 Feet (double track)
11-13 Feet (single track)

Turning Radius
50-100 Feet

Vehicle Length
50 - 80 feet per car (Up to 4 car trains)

Typical Power Source
Electric

Can Operate Concurrently with Freight Service?
No

This includes estimates and figures for complete systems in final design, under construction, or completed after 2003 that do not include tunneling.
(http://www.lightrail.com/LRTSystems.htm)
Section 2

LIGHT RAIL (Without Wires)

Bordeaux, France

(a) Urban landscape with OCS wires; and (b) without OCS wires

Swanson, J.D. “Light Rail Without Wires: A Dream Come True?”
http://onlinepubs.trb.org/onlinepubs/circulars/et058/15_02_Swanson.pdf
Light Rail (Without Wires)

Definition: These light rail vehicles have ground level switched contact systems.

<table>
<thead>
<tr>
<th>Status in the U.S.</th>
<th>Not in Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only used in Bordeaux, France</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Projected Costs per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated as 3 times as costly as light rail with overhead wires¹</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
</tr>
<tr>
<td>Urban</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Operating Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 60 MPH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Station Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk sign</td>
</tr>
<tr>
<td>Station</td>
</tr>
<tr>
<td>Platform</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance Between Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 mile</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 to 8 minutes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate right-of-way</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Right of Way Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-33 Feet (double track)</td>
</tr>
<tr>
<td>11-13 Feet (single track)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turning Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>59 feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vehicle Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>144 feet²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typical Power Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third rail configuration where power is only switched on beneath the moving cars (thus making it safe for pedestrians)</td>
</tr>
</tbody>
</table>

Can Operate Concurrently with Freight Service?
No

² [http://findarticles.com/p/articles/mi_m0BQQ/is_7_43/ai_105642898](http://findarticles.com/p/articles/mi_m0BQQ/is_7_43/ai_105642898)
Section 2

COMMUTER RAIL (DMU Based)

CityRail, Sydney (available through MotivePower in Boise, ID)
Photo courtesy of MotivePower, Inc.

Colorado Railcar Double Deck DMU, Florida
http://www.flickr.com/photo_zoom.gne?id=522982542&size=o&context=photostream

Colorado Railcar at Los Angeles Union Station
http://www.flickr.com/photo_zoom.gne?id=199653245&size=l
Diesel Multiple Unit (DMU)

Definition: A self-propelled rail vehicle wherein the passenger cars contain internal diesel (or diesel-electric) engines. DMUs are capable of operating in either commuter rail or light rail modes of service. In contrast, other commuter rail systems have an independent locomotive pulling “dead” passenger cars and light rail systems are generally powered by overhead electrical lines.

Ref: As adapted from:
http://www.eastsiderailnow.org/dmu.html
http://en.wikipedia.org/wiki/Diesel_multiple_unit
http://www.wgonet.com/ourail/oerail.html
http://www.njtransit.com/an_cp_project006.shtml
http://www.coloradorailcar.com/dmuhome.htm
http://www.fra.dot.gov/documents/NJT_-_Diesel_Multiple_Unit.ppt#257,2,Concept
http://www.sfeccstudy.com/other_transportation.html

NOTABLE CHARACTERISTICS

- Power plants onboard each car allows for trains to be split and joined en-route, and for power to be scaled along with passenger capacity
- Distribution of the propulsion among cars also results in a system less vulnerable to single-point-of-failure outages
- Because each car has a self-contained power plant, there is no need for overhead electric lines or electrified tracks, which can result in lower system construction costs relative to a system which requires electrification

Status in the US
Camden-Trenton, NJ
San Diego, CA (to begin 2007)
Orlando, FL (to begin 2009)
Southern Florida

Projected Costs per Mile
$3 - 32 Million

Service Type
Regional
Intra-urban

Alignment
Generally built on existing tracks at grade street crossings

Right of Way Width
33 - 37 Feet

Turning Radius
140 - 250 Feet

Vehicle Length
50 - 90 Feet/car

Typical Power Source
Hybrid on-board diesel engines

Can Operate Concurrently with Freight Service?
Depends on vehicle

Service Frequency
20 - 30 Minutes

Distance Between Stations
2 - 5 Miles
COMMUTER RAIL (Locomotive Based)

Albuquerque, New Mexico, Rail Runner (Manufactured in Boise, ID)
http://www.flickr.com/photos/mister_goleta/

Photo by Utah Transit Authority, FrontRunner (Manufactured in Boise, ID)
http://www.rideuta.com
Commuter Rail Transit

**Definition:** Commuter Rail is an electric or diesel propelled railway for urban passenger train service consisting of local short distance travel operating between a central city and adjacent suburbs.

### Status in the US: Well Documented Acceptance
- Dallas - Fort Worth, TX (in service)
- Albuquerque, NM (in service)
- Salt Lake City, UT (planned opening late 2008)
- Boston, MA (in service)

### Projected Costs per Mile
$3 - 25 Million**

### Service Type
- Regional
- Interurban

### Average Operating Speed
30-60 MPH

### Station Type
- Station
- Platform

### Distance Between Stations
2-5 Miles

### Service Frequency
20-30 Minutes

### Alignment
Generally built on existing tracks at grade street crossings

### Right of Way Width
37+ feet

### Turning Radius
140 - 460 feet

### Vehicle Length
150 - 500 feet
(Engine and Coaches)

### Typical Power Source
Diesel

### Can Operate Concurrently with Freight Service?
Yes

‡ As adapted from “Transit Technologies Worksheet” by Reconnecting America
http://www.reconnectingamerica.org/public/download/bestpractice175

** Modern Streetcar and Light Rail systems are often lumped in with road and utility reconstruction, increasing the costs.