

*Technical Memorandum*  
**SUMMARY OF GULF COAST RAIL DISTRICT  
COMMUTER RAIL RIGHT-OF-WAY WORKSHOP**

**MARCH 2014**

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Prepared for  
**GULF COAST RAIL DISTRICT**



Prepared by  
**TEXAS A&M TRANSPORTATION INSTITUTE  
THE TEXAS A&M UNIVERSITY SYSTEM**



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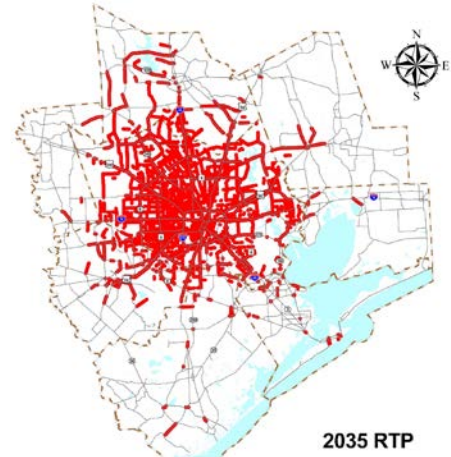
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## GENESIS AND PURPOSE

Since its inception, Houston has prospered because of its rail network. As the freeway system reaches capacity, the Houston-Galveston region is again looking to both freight and commuter rail to foster economic growth and travel alternatives (see Figure 1 and Figure 2).

The Gulf Coast Rail District (GCRD) works with public and private partners to develop and implement a systematic approach to improving the regional rail network for the benefit of the region's residents and the economy. GCRD is investigating the opportunity and feasibility of using rights-of-way (ROW) adjacent to freight rail to develop commuter rail in the region. The concept is to have separate track for freight and commuter rail in separate but adjacent ROW. GCRD hosted a workshop on November 15, 2013 to explore the feasibility of separate but adjacent ROW to accommodate both types of rail in the same corridor. Staff from Texas A&M Transportation Institute (TTI) served as workshop facilitators and summarized the discussion. TTI shared the workshop summary with the Passenger Rail Committee, Gulf Coast Rail District in a meeting December 17, 2013. This report summarizes the workshop discussion and incorporates committee comments.



2035 RTP  
**FIGURE 1. 2035 CONGESTION, REGIONAL TRANSPORTATION PLAN (H-GAC)**



**FIGURE 2. HOUSTON FREEWAY CAPACITY CONSTRAINT AREAS (H-GAC)**

## EXPECTED WORKSHOP OUTCOMES

The workshop agenda included brief introductions, a review of the potential corridors for commuter rail in the region, and a discussion about ROW in the potential corridors. Facilitators used GoogleEarth Pro and City of Houston GIMS tools to zoom in on aerial imagery and pan across each corridor. Workshop participants contributed to discussion about ROW ownership and space for commuter rail. The workshop was essentially the first filter in the decision making process as the region takes a fresh look at commuter rail and focuses on adjacent, separate ROW rather than use of existing freight rail ROW.

The question of the day was **“Which corridors, if any, have ROW potential for commuter rail service and therefore warrant further feasibility analysis?”** Participants at the workshop represented agencies that own or maintain public ROW adjacent to existing freight rail corridors. Since current freight activity precludes the use of existing rail ROW for commuter service, the purpose of the workshop was to look at ROW adjacent to freight or other ROW where it might be possible to operate passenger rail service. Expected outcomes for the workshop included (1) identifying corridors with ROW potential, (2) prioritizing the corridors for further study, and (3) confirming desired next steps with stakeholders.

## WORKSHOP PARTICIPATION

GCRD worked with TTI staff to invite as many relevant stakeholders to participate in the workshop as possible. The following organizations received invitations to attend the workshop and contribute to the discussion:

- **City of Houston, Planning and Development**
- **City of Houston, Public Works and Engineering**
- **City of Houston, Public Works Traffic Operations Division**
- **Harris County, Public Infrastructure Department**
- **Harris County Flood Control District**
- **Harris County Toll Road Authority (HCTRA)**
- **Fort Bend County, County Engineer**
- **Fort Bend County Transit**
- **Waller County, County Engineer**
- **Galveston County, County Engineer**
- **Montgomery County, Transportation Manager**
- **Texas Department of Transportation (TxDOT) Houston District**
- **TxDOT Rail Division, Austin**
- **Metropolitan Transit Authority of Harris County (METRO), Planning**
- **Houston-Galveston Area Council (H-GAC), Transportation and Air Quality Programs**
- **CenterPoint Energy**

The following individuals attended the workshop on November 15, 2013:

- **James Spurgeon**, CenterPoint Energy
- **Dan Krueger**, City of Houston Public Works and Engineering
- **Chad Zorn**, City of Houston Public Works and Engineering
- **Jeff Weatherford**, City of Houston Public Works Traffic Operations Division
- **Mike Kramer**, City of Houston Planning & Development
- **Richard Stolleis**, Fort Bend County Engineer
- **Paulette Shelton**, Fort Bend County Transit
- **Richard Zientek**, Harris County Office of County Judge Ed Emmett
- **Charles Dean**, Harris County Public Infrastructure Department
- **Alan Clark**, H-GAC Director of Transportation Planning
- **Clint Harbert**, METRO Planning
- **Tony Voigt**, TTI Houston Office
- **Joy Carter**, TxDOT - Rail Division, Austin
- **Andy Mao**, TxDOT - Houston District
- **Carol Lewis**, GCRD Board Member and Chair, Passenger Rail Committee
- **Maureen Crocker**, GCRD Executive Director
- **Sam Lott**, Kimley-Horn and Associates
- **Brenda Mainwaring**, Union Pacific Railroad

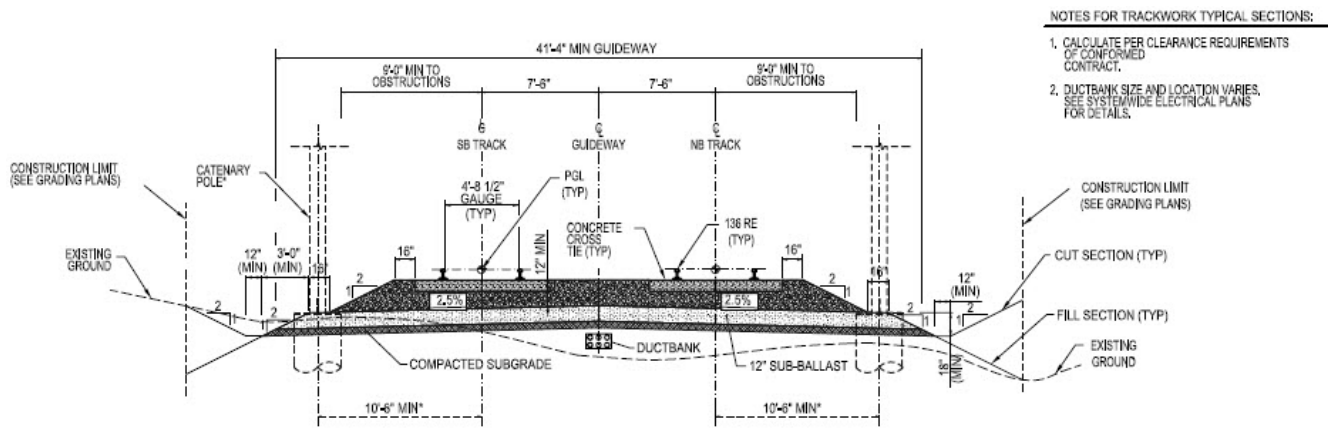
Linda Cherrington, Jonathan Brooks, Todd Hansen, Tony Voigt, and Steve Barkley participated on behalf of TTI. GCRD and TTI thank all individuals and their respective organizations for taking time to attend and actively participate in the discussion.

## COMMUTER RAIL IN HOUSTON

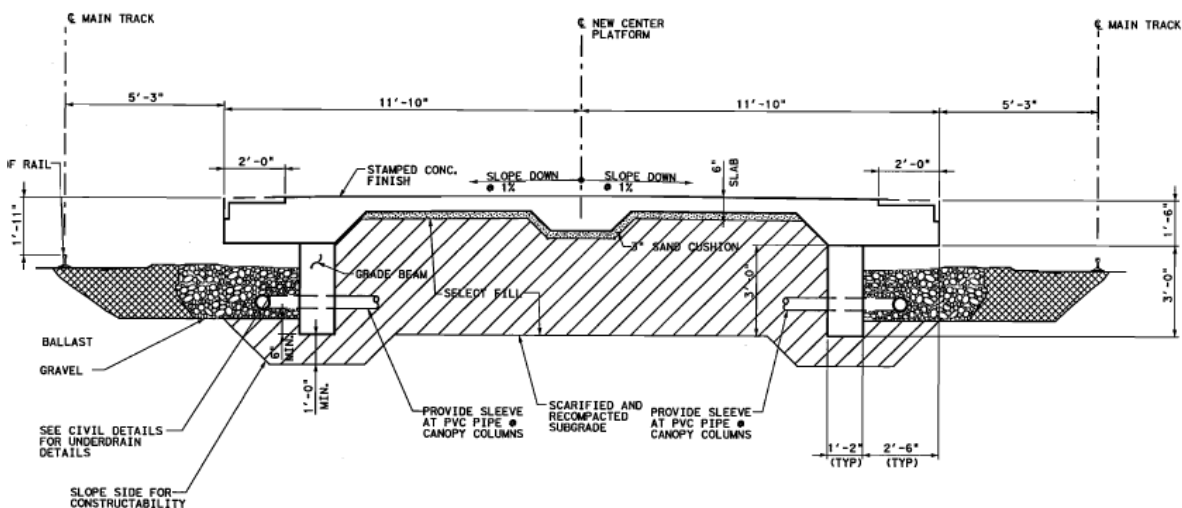
Commuter rail is a passenger rail mode that primarily operates between the city center and the middle to outer suburbs. Commuter rail draws commuters in peak periods—people who travel to and from home and work on a daily basis. For purposes of the workshop, the workshop attendees assumed the following operating criteria when reviewing potential commuter rail corridors:

- Self-propelled diesel trains comprised of several vehicles with 1-2 passenger compartment levels
- About 30' minimum ROW for single-track service, preference for 50' minimum ROW for double-track service
- Service in peak hours, peak period, or continuous bi-directional service
- Stations placed every 3-5 miles

Figure 3 depicts a typical cross-section for double tracks used to provide bi-directional commuter rail service using about 42' of ROW. Figure 4 depicts a typical cross-section for double tracks placed around a station platform using about 55' of ROW.



**FIGURE 3. DOUBLE TRACK BI-DIRECTIONAL CROSS-SECTION**



**FIGURE 4. STATION PLATFORM CROSS-SECTION**

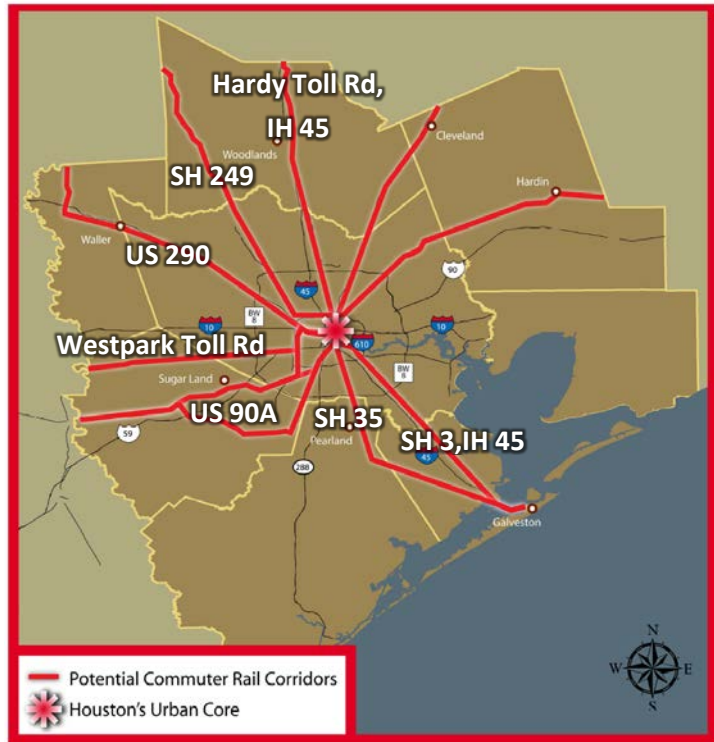
## SUMMARY OF WORKSHOP DISCUSSION BY CORRIDOR

The workshop was essentially the first filter in the decision-making process as the region takes a fresh look at commuter rail service. ROW was the primary topic of discussion in the workshop. Attendees discussed whether ROW exists in each of several corridors. In the past, the region has studied potential commuter rail service in each of 16 corridors. A workshop background paper provided detailed information about the timeline of commuter rail studies in the region (available on the GCRD website).

Workshop attendees engaged actively and openly. The group discussed seven corridors and commented on several others. The location of the seven corridors discussed in the workshop are depicted in Figure 5 and listed below in the order information is presented in the following sections:

- SH 249 (North)
- Westpark Tollway (West)
- US 290 (Northwest)
- US 90A (Southwest)
- SH 35 (South)
- SH 3 – IH 45 (South)
- Hardy Toll Road – IH 45 (North)

The following sections provide a brief description of each corridor and then summarize the opportunities and challenges for acquiring ROW in the corridor to operate commuter rail service.



**FIGURE 5. POTENTIAL COMMUTER RAIL CORRIDORS**  
(H-GAC, 2008 CRC STUDY)

### SH 249 (NORTH)

The SH 249 potential commuter rail corridor extends north out of Houston towards Pinehurst, TX – about 36 miles. Texas Central Railway (TCR) is a private venture studying the feasibility of operating high-speed rail service between Dallas and Houston within this corridor.

<b>Opportunities</b>	<ul style="list-style-type: none"> <li>• High-speed rail will require acquisition of ROW; there is an opportunity to acquire sufficient property to make it possible to develop parallel commuter passenger rail</li> <li>• Opportunity to share facilities (track and stations)</li> <li>• Goal for high-speed rail to be in service by 2020</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>• Coordination with private developer TCR; just beginning environmental review</li> <li>• High-speed rail to be grade separated to access downtown; grade separation and/or viaducts may not be necessary for commuter rail operation in this corridor</li> <li>• Cost</li> </ul>

### WESTPARK TOLLWAY (WEST)

The Westpark Tollway potential commuter rail corridor extends west out of downtown Houston to Fulshear, TX in Fort Bend County – about 34 miles.

<b>Opportunities</b>	<ul style="list-style-type: none"> <li>• There is no active freight rail in the corridor</li> <li>• METRO owns the ROW but sale is possible</li> <li>• METRO has no plans to develop west of Beltway 8</li> <li>• Inside Beltway 8, METRO intends to reserve ROW for the University light rail corridor</li> <li>• Opportunity to provide a corridor from rapidly growing areas in Fort Bend County to Uptown/Post Oak as well as downtown</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>• Inside Beltway 8, METRO would like to hold onto a 50-foot reserve ROW</li> <li>• Inside Beltway 8, the ROW runs parallel to the Westpark Tollway; using ROW adjacent to the tollway for commuter rail would require knocking down some ramps that today do not provide the necessary clearance</li> </ul>

The Capital Metropolitan Transportation Authority (Capital Metro) owns 57.8 miles of mainline track between Austin and Giddings (Capital Metro East Subdivision). TxDOT Rail Division is investigating the feasibility of passenger rail from Austin to Houston using the Capital Metro East Subdivision as far as Giddings. At Giddings, the East Subdivision meets the abandoned Southern Pacific (SP) right of way, which runs from Giddings to Hempstead (US 290 corridor). There may be merit in looking at the feasibility of an alternate alignment for passenger rail from Giddings to south of IH 10 and then to the Westpark corridor.

**US 290 (NORTHWEST)**

The US Highway 290 (US 290) potential commuter rail corridor extends from Houston along US Highway 290 to Hempstead, TX in Waller County – about 50 miles.

<p><b>Opportunities</b></p>	<ul style="list-style-type: none"> <li>• High demand for commuter service connecting suburban population centers and employment/activity centers to Uptown-Post Oak-Galleria, downtown Houston, and the Texas Medical Center</li> <li>• Outside of Beltway 8 consider ROW near Old Hempstead Road, but inside Beltway 8 should look at ROW adjacent to Hempstead Road and parallel to US 290</li> <li>• Vacant land available for purchase of ROW along some segments, especially outside Beltway 8</li> <li>• Leverage previous detailed studies of the corridor and environmental impact statement (EIS) documents that included 50 feet of ROW for high-capacity transit</li> <li>• Commuter rail might be designed as an alternative to a toll road or as a complementary investment</li> </ul>
<p><b>Challenges</b></p>	<ul style="list-style-type: none"> <li>• Requires coordination with Harris County, TxDOT, and private railroads to provide access for passengers/autos to commuter rail stations</li> <li>• In some segments of the corridor, the only solution appears to be elevated structure over roadway ROW</li> <li>• Need for connections by another mode into downtown and Uptown-Post Oak-Galleria with enough capacity to move riders smoothly from commuter rail to another transit mode</li> <li>• Cost, in some segments purchasing ROW and in other segments elevating infrastructure</li> </ul>

There may be an opportunity to meet the Capital Metro East Subdivision at Giddings. TxDOT is evaluating the feasibility of passenger rail from Austin to Houston using the Capital Metro East Subdivision from Austin to Giddings. At Giddings, the East Subdivision meets the abandoned Southern Pacific (SP) right of way, which runs from Giddings to Hempstead.



**US 90A (SOUTHWEST)**

The US 90A potential commuter rail corridor extends from the area generally near Texas Medical Center along US 90A southwest into Fort Bend County, TX – about 35 miles. METRO studied the Harris County portion of this corridor until the METRO Board put the study on hold in December 2012.

<p><b>METRO Status</b></p>	<ul style="list-style-type: none"> <li>• METRO did an environmental impact review in 2011 to look at alternatives that would feed into the existing METRO Red Line (light rail); alternatives mostly operating in new ROW adjacent to US 90A</li> <li>• METRO narrowed to two alternatives both using light rail so that rail service would feed into the Red Line at Fannin Street without the need for a transfer; new service would insert trains into the existing time slots of Red Line frequency (turn trains back at Wheeler in Midtown)</li> <li>• METRO looked at turning the rail line towards Holmes Rd or Buffalo Speedway and then going to US 90A, just beyond Beltway 8 at the Harris County line</li> <li>• H-GAC plans additional study of the segment beyond Beltway 8 after METRO has reached a locally preferred alternative (LPA)</li> </ul>
<p><b>Opportunities</b></p>	<ul style="list-style-type: none"> <li>• ROW along/median US 90A in Fort Bend County</li> <li>• ROW along US 59 South</li> <li>• Opportunity to “funnel” commuter market from within Fort Bend County to most accessible METRO station</li> </ul>
<p><b>Challenges</b></p>	<ul style="list-style-type: none"> <li>• The US 90A corridor has limited adjacent ROW parallel to the existing rail corridor. Constrained ROW in areas where residential development is near the rail alignment and where the corridor crosses the Brazos River.</li> <li>• Challenges include the airport, river crossing, height restrictions, and residential neighborhoods. Should also investigate potential to use ROW parallel to US 59 freeway.</li> <li>• Participants in the workshop suggested looking at alignments using ROW parallel to US 59, the US 59 HOV/HOT lanes, and/or elevated track.</li> </ul>

### **SH 35 (SOUTH)**

The SH 35 potential commuter rail corridor extends almost due south from downtown Houston towards Pearland and Alvin, TX – about 27 miles.

<b>Opportunities</b>	<ul style="list-style-type: none"> <li>• Built environment along corridor less developed than in many other corridors</li> <li>• More adjacent ROW may be feasible to purchase for commuter rail</li> <li>• Connection between south of Houston, University of Houston, and downtown</li> <li>• Would attract riders from populations using congested SH 288 and IH 45</li> <li>• TxDOT has plans for improving the corridor from Spur 5 to the Alvin Bypass</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>• Significant demand, but somewhat less when compared to other potential commuter rail corridors</li> <li>• Cost</li> </ul>

TxDOT Houston District plan is a major investment (toll road) in the SH 35 corridor, from Spur 5 adjacent to the University of Houston southward to the Alvin Bypass. Between Spur 5 and IH 610, the alignment is mostly within existing TxDOT ROW. South of IH 610, the roadway could run along the east side of the existing Mykawa Road and BNSF Railway tracks, utilizing existing TxDOT ROW. Commuter rail may be feasible in separate ROW on the west side of the BNSF Railway tracks running parallel to the current freight operation.

### **SH 3 / IH 45 (SOUTH)**

The SH 3 – IH 45 potential commuter rail corridor extends south out of downtown Houston to Galveston, TX in Galveston County – about 48 miles.

<b>Opportunities</b>	<ul style="list-style-type: none"> <li>• High demand, high corridor congestion</li> <li>• Connect to southeast to Hobby Airport, University of Houston, downtown</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>• No presently available ROW, existing ROW for infrastructure is at capacity</li> <li>• Commuter rail would have to be elevated and would require purchase of ROW</li> <li>• Cost to obtain ROW high</li> </ul>

***HARDY TOLL ROAD / IH 45 (NORTH)***

The Hardy Toll Road – IH 45 potential commuter rail corridor extends north out of Houston towards The Woodlands, TX – about 37 miles. The most relevant stakeholder, HCTRA, did not participate in the workshop and so did not comment on this corridor; discussion was limited to only a few minutes. Commuter rail may be feasible in this corridor; however, commuter rail would need to be elevated in significant segments and therefore may be costly compared to other corridors.

<b>Opportunities</b>	<ul style="list-style-type: none"> <li>• Toll road ROW exists, might be possible to accommodate elevated commuter rail infrastructure</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>• Coordination with HCTRA to provide commuter rail station access for passengers</li> <li>• High cost for elevated infrastructure</li> </ul>

***OTHER CORRIDORS AND DISCUSSION***

Workshop attendees provided additional comments and observations about commuter rail.

- Previous commuter rail studies focused on commuter rail sharing track with freight operations. Since this is no longer an assumption, the region should consider taking a fresh look at corridors previously dismissed, such as Highway 225, Highway 288 to Highway 521, Highway 521 to FM 1994.
- Once commuter rail is inside Loop 610 (IH 610), there may be ROW where tracks are abandoned and the region has currently or is planning to create hike and bike trails; should be possible to accommodate commuter rail track and biking trails in shared ROW.
- Utility providers, such as CenterPoint, face increasing demand for services and do not anticipate any significant opportunities to share 50 feet of ROW for commuter rail. However, utility providers may be willing to review crossings and small encroachments of planned facilities.
- The region should consider elevating portions of track where flooding may be an issue.

## WORKSHOP OUTCOMES AND PRIORITY CORRIDORS

The question of the day for workshop attendees was:

“Which corridors, if any, have ROW potential for commuter rail service and therefore warrant further feasibility analysis?”

TTI facilitators, the GCRD Executive Director, and workshop attendees participated in discussion for three hours with the following objectives:

- Identify corridors with ROW potential
- Prioritize corridors for further feasibility study
- Confirm next steps with the stakeholders present

Workshop attendees engaged actively and openly. The group discussed seven corridors and opened up for comments and discussion about additional corridors. The workshop participants generally concurred that, of the seven corridors discussed, the following five corridors warrant further feasibility studies for commuter rail service:

- Westpark Tollway (ROW exists outside Beltway 8)
- State Highway 35 (SH 35) (ROW opportunity, demand drawn from multiple adjacent highway corridors)
- State Highway 249 (SH 249) (potential partnership with high-speed rail)
- US Highway 290 (US 290) (ROW challenging, but significant demand exists)
- US Highway 90A (US 90A) (ROW outside Beltway 8 challenging, but significant demand exists)

The working group was optimistic that one or more of these corridors warrants the region’s investment in commuter rail. Successful commuter rail will require effort to acquire ROW, construct track and stations, and operate. Another challenge is smoothly connecting commuter rail passengers to the region’s several large employment centers, downtown Houston, Texas Medical Center, Uptown-Post Oak-Galleria, and other employment centers.

TTI shared the workshop summary with the Passenger Rail Committee, Gulf Coast Rail District, in a meeting December 17, 2013. The members of the Passenger Rail Committee endorsed an approach to use the services of Kimley-Horn and Associates to conduct further feasibility studies for the most promising corridors and to take a more detailed look at access to downtown inside Loop 610 (IH 610). The members of the committee were optimistic about the Westpark corridor and State Highway 35. In addition, the State Highway 249 corridor offers potential partnership with Texas Central Railway. TxDOT Rail Division may be able to assist looking at the feasible alignments for Austin to Houston passenger rail, perhaps using the US Highway 290 or Westpark Tollway corridors.