Town of Atherton
ATHERTON RAIL COMMITTEE
Minutes
TUESDAY, August 14, 2018
6:00 p.m.
TOWN COUNCIL CHAMBERS
Special Meeting

1. ROLL CALL

Committee Members: Jack Ringham, Paul Jones, Scott Lane, Nerissa Dexter, Jim Janz, Alex Keh, Anthony Wynne
Councilmember Liaisons: Mayor Cary Wiest
Staff: Robert Ovadia

2. PUBLIC COMMENTS – For items not on the agenda.

None.

3. APPROVAL OF MINUTES – June 5, 2018

Approved with edits.
Motion: Jack Ringham
Second: Scott Lane

4. PRESENTATIONS – None

5. REGULAR AGENDA

5a. Election of Chair and Vice Chair

- Chair: Paul Jones (Motion: Scott Lane / Second: Nerissa Dexter)
- Vice Chair: Jim Janz (Motion: Paul Jones / Second: Alex Keh)

5b. PCEP Update

5c. Litigation Update

- Hearing Scheduled for October 26, 2018, 90 days to issue ruling

5d. High-Speed Rail Project Update

Preliminary Engineering Project Definition (PEPD) review

- Request HSR to make a presentation to the Committee

5e. Caltrain Business Plan Update

6. COMMITTEE AND STAFF MEMBER COMMENTS

- Handout – High Speed Rail Safety by: Paul Jones June 28, 2018

7. PUBLIC COMMENT

None.

8. FUTURE AGENDA ITEMS

- Discussion of Town Rail Policy

9. NEXT MEETING – October 2, 2018

10. ADJOURN

Next meeting is scheduled for: October 2, 2018

Please contact the City Clerk's office at (650) 752-0500 with any questions. Pursuant to the Americans with Disabilities Act, if you need special assistance in this meeting, please contact the City Clerk's Office at 752-0500. Notification of 48 hours prior to the meeting will enable the Town to make reasonable arrangements to ensure accessibility to this meeting. (29 CRF 35.104 ADA Title II)

High Speed Rail Safety

Paul S. Jones

June 28, 2018

An audit of the California High Speed Rail Authority (Authority) cannot be complete without a careful examination of the design and construction of the high speed rail system whose trains are to operate at speeds in excess of 200 mph. A train traveling at such a high speed requires an exceptionally smooth, straight track with few curves that have sufficient lead in and taper off track sections to prevent sudden pressure on wheels which can lead to passenger discomfort and derailment. When France's high speed TGV service was initiated, it was standard practice to send empty trains over all tracks each day to ensure that the service was safe for passengers. China is the only nation to operate high speed trains at speeds above 200 mph. One of China's trains suffered a terrible accident. Although the exact cause of the accident has not been released, the top speeds for all high speed trains were immediately reduced from 217 mph (300 km/hr.) to 186 mph (300 Km/hr.).

For safe operation of a high speed rail system, it is imperative that the track structure, roadbed, ballast, ties, and rail, be designed and built to very accurately meet rigorous specifications. The Authority has prepared an extensive set of design specifications that are largely taken from the specifications of the American Railway Engineering and Maintenance-of-Way Association (AREMA). Some of the important requirements for trains operating in excess of 200 mph are:

1. The rail must be continuous welded on concrete ties with elastic fasteners. Track can be conventional tie and ballast, or it can be rigidly secured to a concrete deck. The Authority's plans include both. Transitions between track on ballast and track on structures must be carefully designed and installed to prevent relative movement of the two different track structures.
2. All curves, both horizontal and vertical are extremely critical. At speeds above 200 mph, there must be no more than three changes of direction, however slight, in any mile, and the maximum curve angle must be 1 degree or less. Entry and exit from curves must be very gradual to avoid passenger discomfort at high speed. For entry and exit from intermediate stations, turnouts must be long and switches designed with long frogs and leads. There must be strict speed limits where track standards are violated. When curves occur on elevated structures, the appropriate amount of super elevation should be built into the structure.
3. For horizontal curves at speeds greater than 150 mph, great design and construction care is needed in and around the curve, including gradual entry into the curve and exit out of it. For operation above 160 mph, clothoid spirals that provide for simultaneous vertical and horizontal curve movement are prohibited. For higher speeds, higher order (S shaped curve) transition spirals can provide correct geometry. Super elevation of the outboard rail will permit higher speeds around curves, but super elevation above 6 inches is not permitted. Using a maximum super elevation of 6 inches at a speed of 200 mph the minimum radius of curvature for the curve would need to be just over 5 miles. However, the system must not be designed with any more minimal curve radii than is absolutely necessary
4. Vertical curves are very critical and require carefully engineered transitions into and out of the curve. The transitions should be as long as possible. Different countries use different standards depending on the design of their trains and the nature of their topography. Radii of curvature

vary from 6.2 miles for Japan's Shinkonsen to as much as 15 miles. In any case, changes in grade should be made as infrequently as possible and as gently as the route will allow.

The above comments merely touch on the importance of safety in track design and execution. It is essential that any audit team that is examining the California High Speed Rail System include a highly skilled track engineer who can correctly evaluate all safety aspects of the track design and of the final track installation. He/she should carefully examine all of the Authority's technical memoranda that apply to track structure and compare these with the AREMA requirements. Any discrepancies should trigger questions, such as:

1. Who within the CHSRA organization made the decision to differ from AREMA and what was the basis for the decision?
2. Is the new Authority consistent with sound engineering practice?

Once the inspector is satisfied with the quality of the Authority's specifications, each contract section should be carefully explored, asking such questions as:

1. Was the contractor bound to meet CHSRA's specifications within the contract?
2. Were any variances requested? If so, what were the reasons for the variance and does it fall within sound engineering practice?

When the inspector is satisfied that the contractor is working from proper documents, the next step is to review the design documents to ensure that they meet the accepted specifications. When the design has been approved, the inspector should address the construction work in place to ensure that it was performed to meet the specifications. This task begins with a study of all inspection reports with special attention to "out of conformance" notations, together with actions taken to resolve the "out of conformance" condition. The inspector should note and judge the acceptability of each instance. Questions that might be asked are:

1. Are there records of any third party letters or reports that raise inspection issues? How and by whom have these been resolved?
2. What inspections have not been performed because they require "load testing" or other special preparation? When will these inspections occur?

Finally, it is essential that the inspector visit and inspect the completed construction to verify that the work has been performed as planned. The physical inspection should include tests and measurements as appropriate.