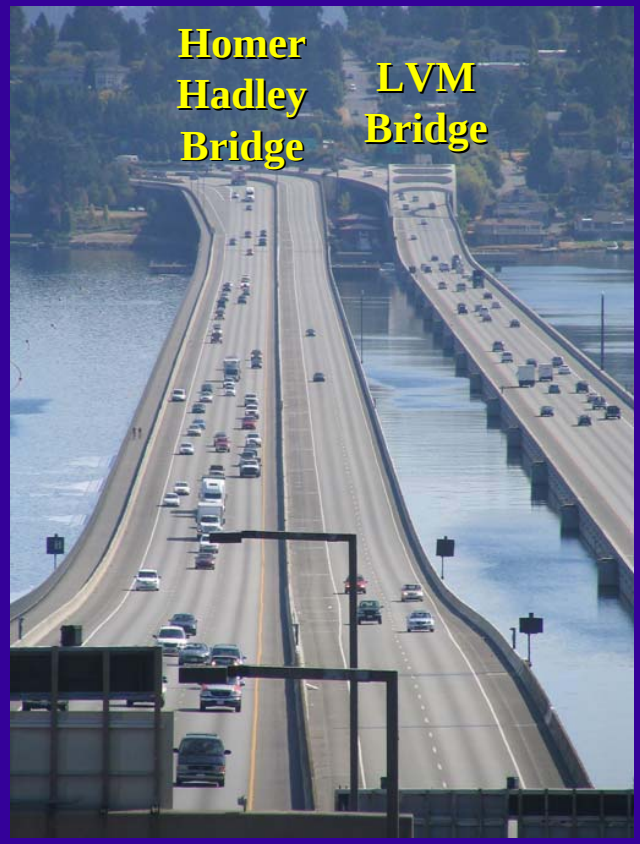
I-90 Homer Hadley Bridge

Median Barrier Removal and Relocation Assessment

WSDOT
Bridge & Structures Office
Ralph Dornsife

Background

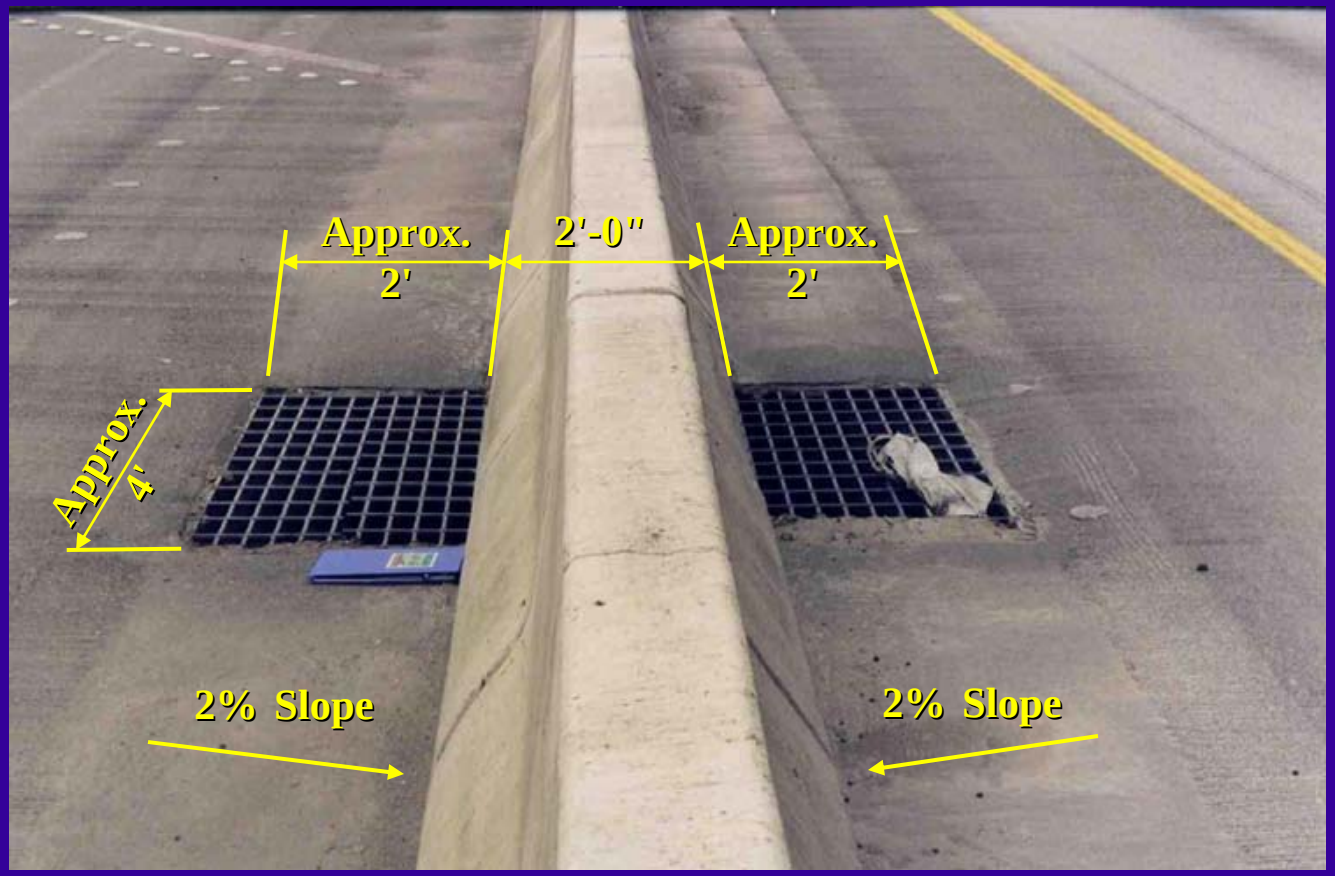
- **Homer Hadley Bridge**
  - **Westbound lane roadway**
  - **Reversible lanes**
- **Lacey V. Murrow Bridge**
  - **Eastbound lane roadway**



Median Barrier Relocation

- **Stage 1**
  - **Two-way Transit and HOV Operations**
- **Stage 2**
  - **East Link Project (light rail)**

Existing Stormwater Inlets



Pontoon Access Hatches

Independent Review Team

"The goal of any median barrier relocation concept should be to maintain the existing pontoon access, storm water drainage, and assure the structural integrity of the bridge and bridge deck."

– IRT Final Report ~ 9/15/2008

Structural Concerns

- Potential damage from barrier removal could reduce performance, durability and remaining deck life
- Potential damage associated with anchoring a replacement barrier
- Difficulties locating existing post-tensioning reinforcement

Removal Issues

- **Deck is heavily reinforced**
  - **Mild reinforcement top & bot. each way**
  - **Transv. post-tensioning at approx. 1'-9" spa.**
- **Removal methods**
  - **Jacking / chipping hammers**
  - **Saw cutting**
  - **Hydro-demolition**

Barrier Anchorage Issues

Through holes and under slab anchor plates required

- **Requires accurately locating PT**
- **Requires pontoon access underneath slab**
- **Disturbance of PT > reduced service life**

Methods to Locate Reinf.

- **Pachometer Testing**
  - **Works well for upper mat of steel**
  - **Not reliable for locating deeper PT**
- **Ground Penetrating Radar (GPR)**
  - **Can detect deeper reinf., including PT**
  - **Reinf. diameter difficult to evaluate**
- **Radiographic (X-ray)**
  - **Cost, time, access limitation**
  - **Best for resolving issues, quality assurance**

Maintenance Concerns

- 6' barrier offset precludes routine maintenance operations w/o WB lane access
- 6' barrier offset likely limits routine maintenance to off-peak times
- All alternatives will require WB HOV lane closure for major maintenance operations

Access Hatch – Drainage Concerns

- Move barrier 2' south
  - Gutter width reduced: 2' to 1'
  - Increased susceptibility of hatches to flooding / leaking
- Move barrier 6' south
  - Westbound roadway contributes runoff – potentially increased risk

Stormwater Inlet Concerns

- Move barrier 2' south
  - Provide scuppers at inlets and possibly at hatches
- Move barrier 6' south
  - Provide scuppers at inlets
- Structural modifications to support inlet grates