

# Design Options for a Transit Terminal near a Steep Hill

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**IBI GROUP**  
Presented at CITE  
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Purpose  
Terminal Functions  
Setting

Challenges  
Options  
Evaluation

Functional Design  
Profile and Layout

## OUTLINE

## Future Plan for New Bus Terminal

Nearby road grid to be constructed → new routes

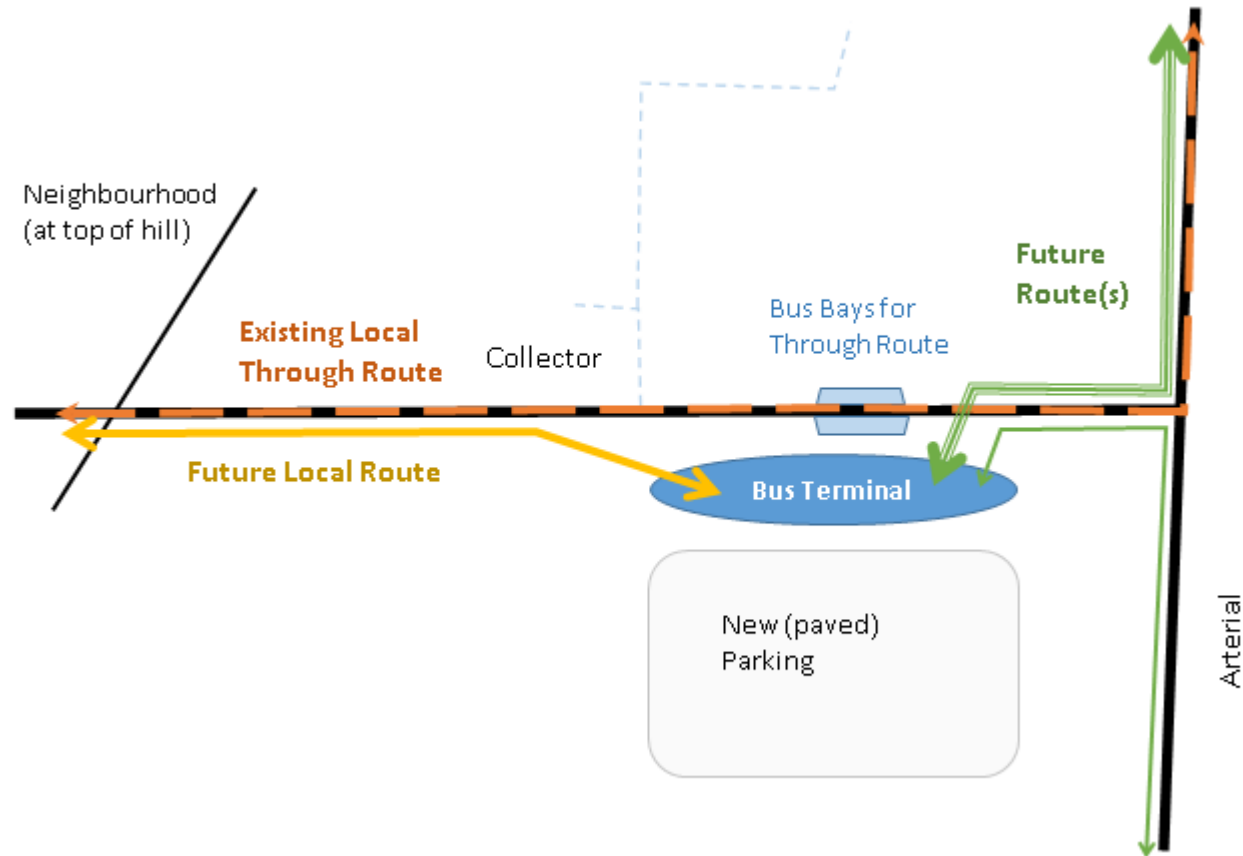
Existing parking lot → park and ride

### Modifications to existing street should

- Accommodate new terminal and parking access
- Retain/enhance pathways and bus stops
- Minimize operational and safety issues

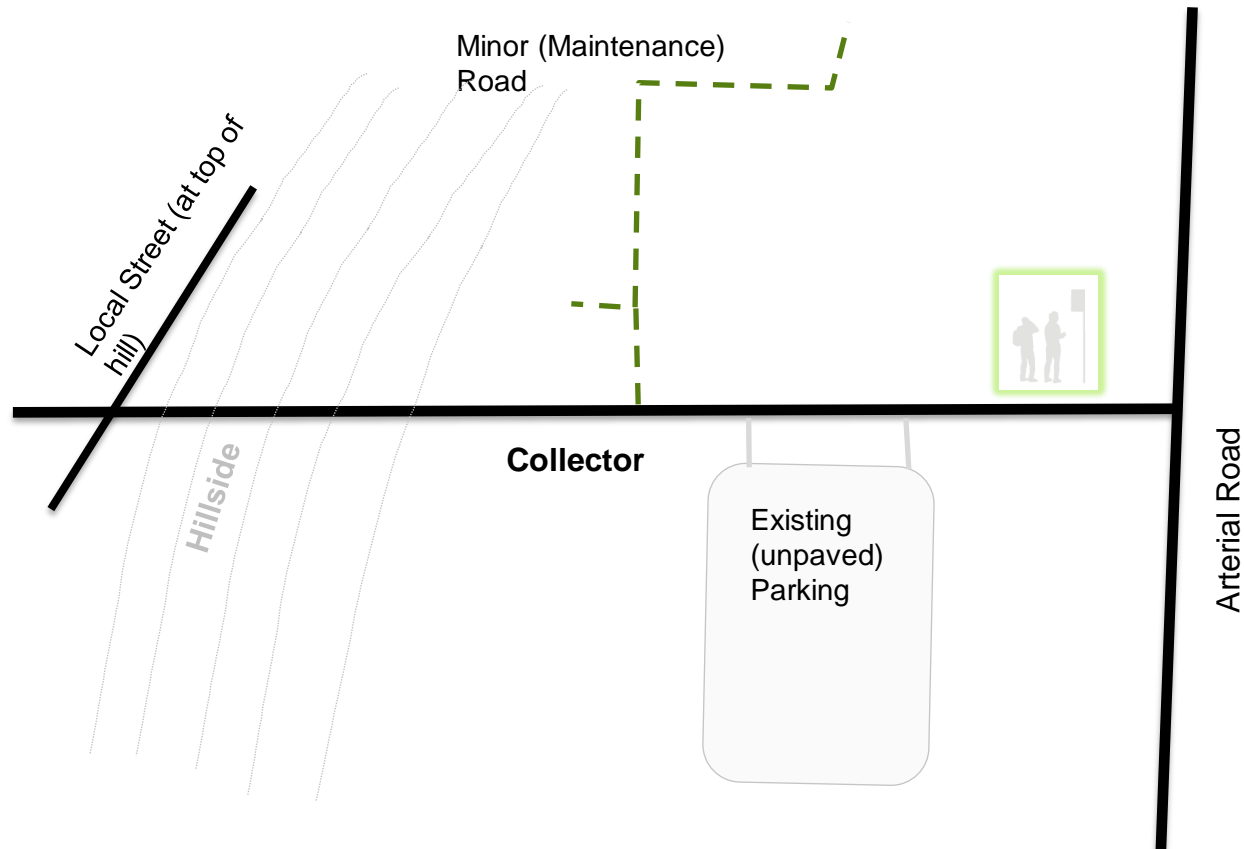
## PURPOSE

## Bus Transit Service Proposal



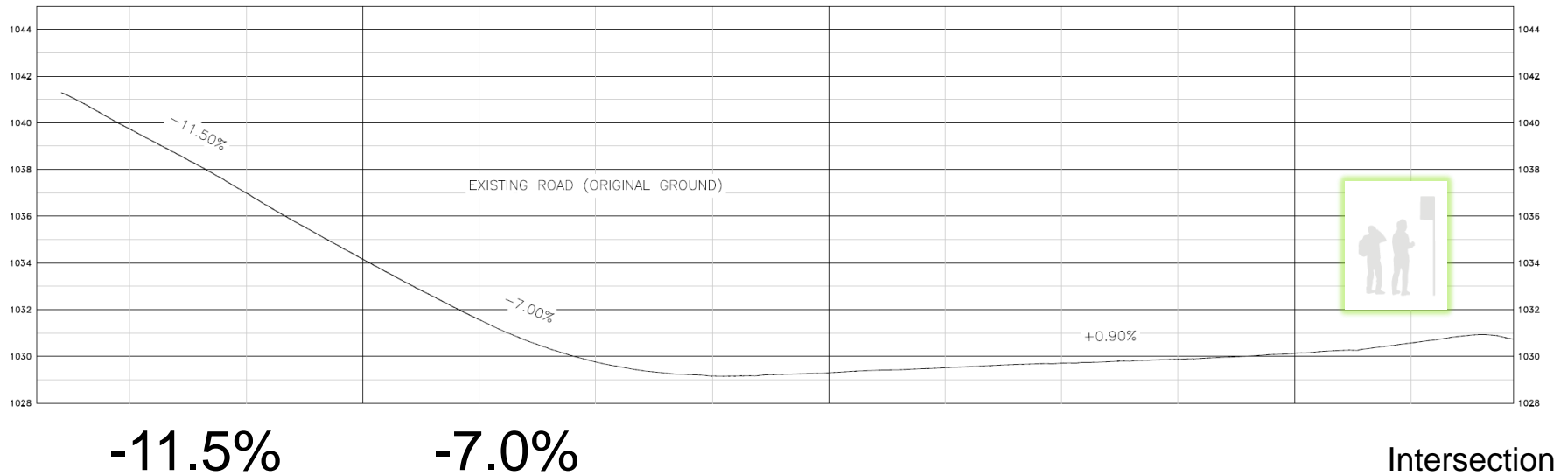
### FUNCTIONS

## Existing Conditions



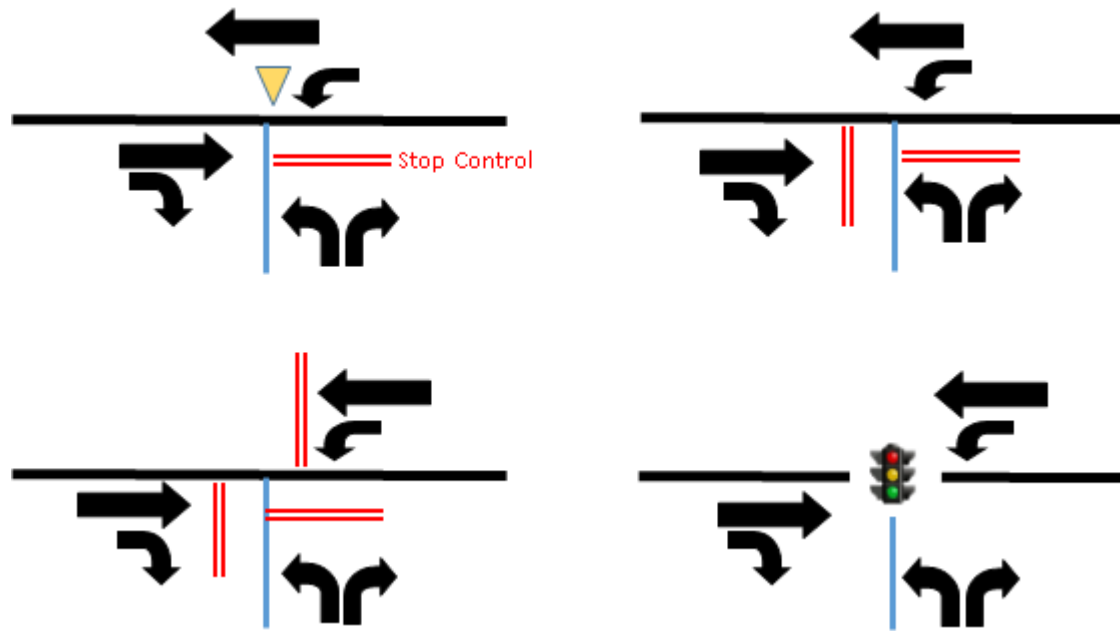
## SETTING

## Existing Grade Exceeds Ideal for Bus Operations



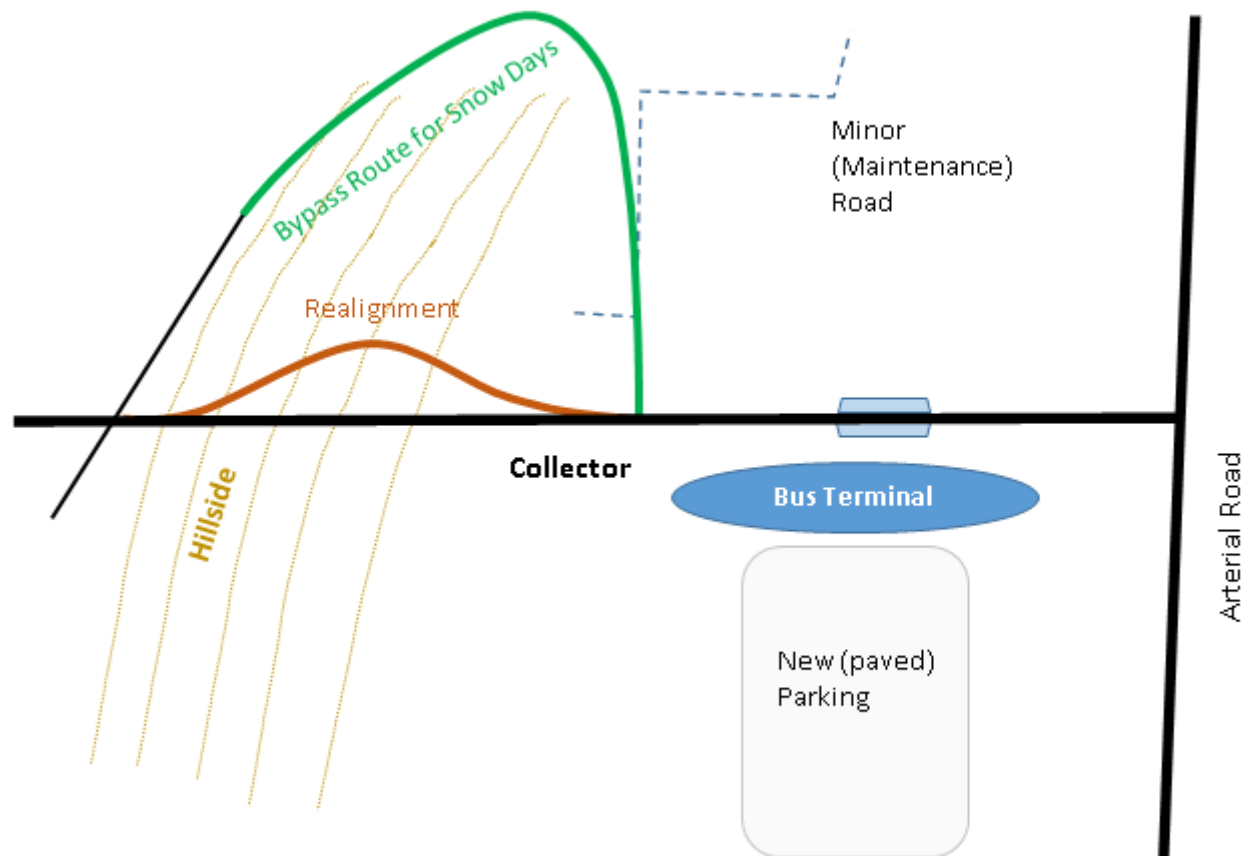
### CHALLENGES

## Intersection Control Options



### OPTIONS - 1 & 2

## Reduce Grade by Realigning

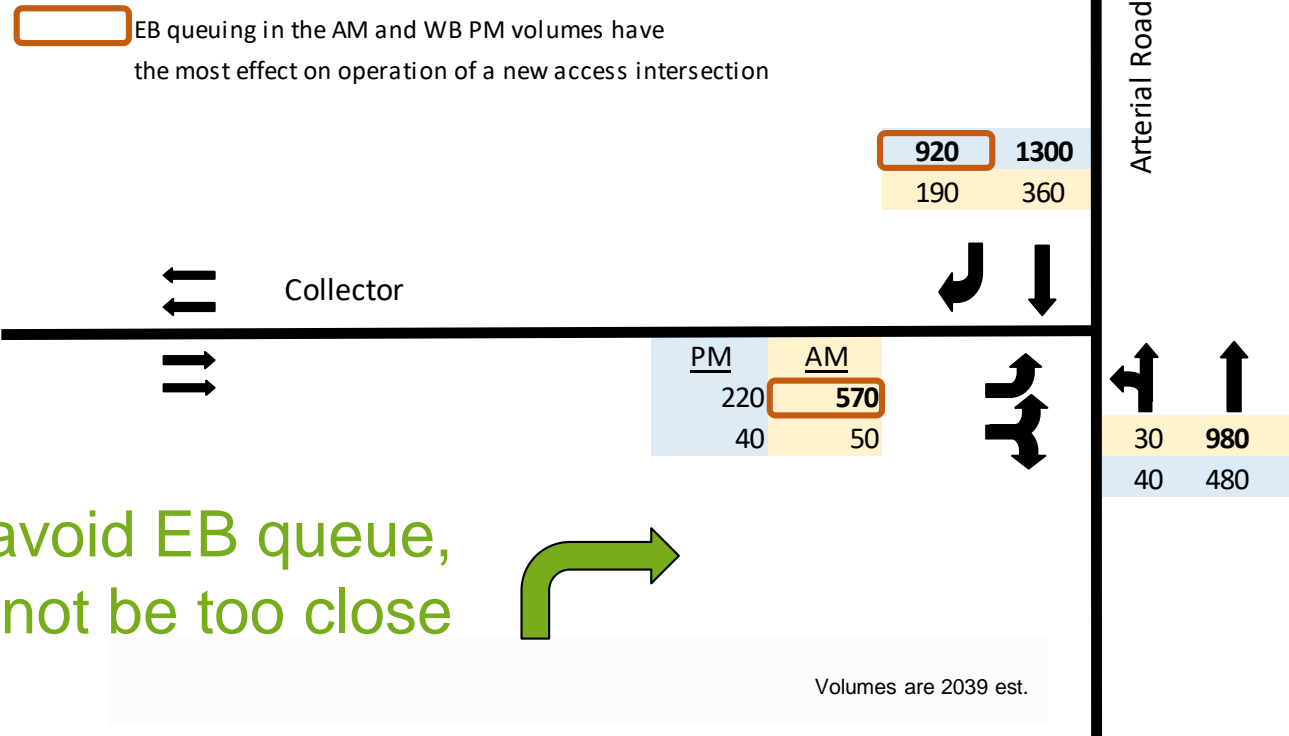


### OPTION 3



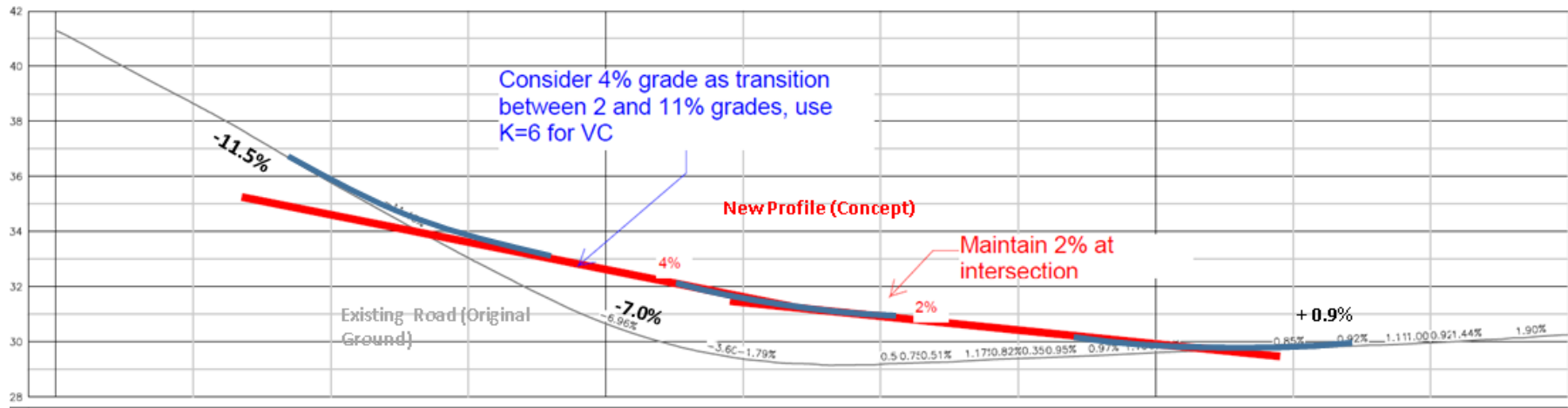


## Relocated Access Point



### OPTION 5

## Modified Profile



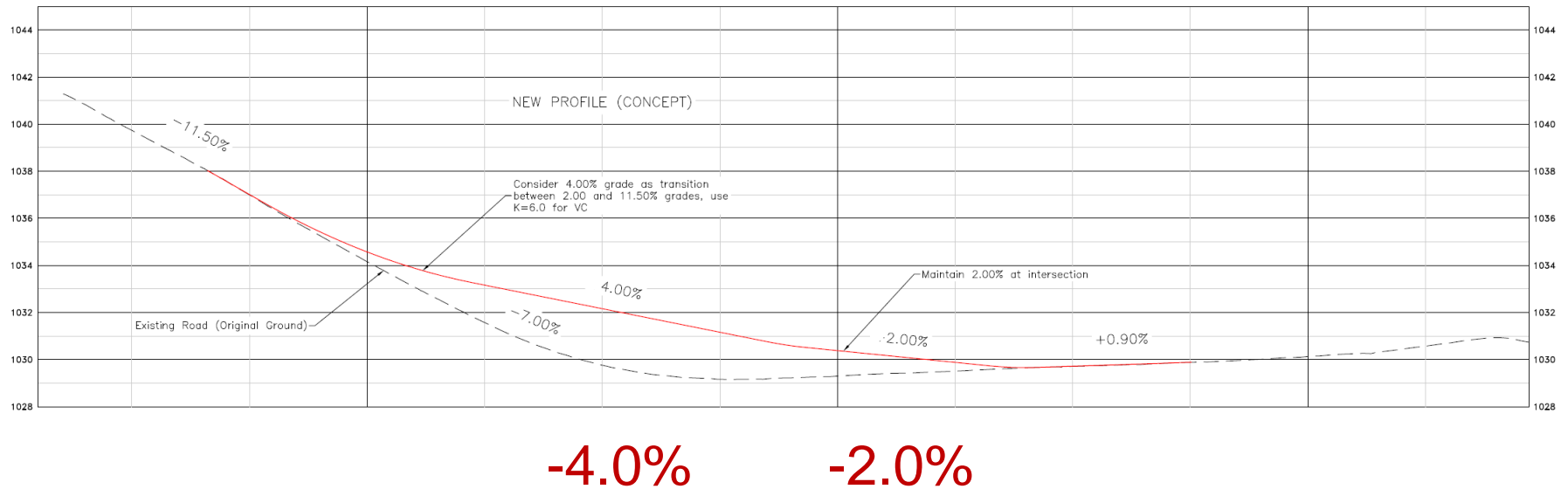
Access Road ?

### OPTION 6

Option	Advantages	Disadvantages
Stop Signs	<ul style="list-style-type: none"> <li>✓ Uphill momentum if no WB stop sign</li> <li>✓ Gaps for exit from terminal</li> </ul>	<ul style="list-style-type: none"> <li>✗ Downhill stopping not solved</li> <li>✗ Left turn climb not solved</li> </ul>
Traffic Signal	<ul style="list-style-type: none"> <li>✓ Potential transit priority</li> <li>✓ Less frequent stops than with signs</li> </ul>	<ul style="list-style-type: none"> <li>✗ Downhill stopping not fully solved</li> <li>✗ Uphill climb not fully solved</li> </ul>
Alternative Routes	<ul style="list-style-type: none"> <li>✓ Partial mitigation of uphill climb, downhill stopping issues</li> </ul>	<ul style="list-style-type: none"> <li>✗ Insufficient reduction in grades</li> <li>✗ Property issues</li> </ul>
Protected T	<ul style="list-style-type: none"> <li>✓ Uphill momentum</li> <li>✓ Left turn safety</li> </ul>	<ul style="list-style-type: none"> <li>✗ Downhill stopping not solved</li> <li>✗ Left turn climb not solved</li> <li>✗ Width of road section</li> </ul>
Re-locating Access	<ul style="list-style-type: none"> <li>✓ Reduces uphill climb, downhill stopping issues</li> </ul>	<ul style="list-style-type: none"> <li>✗ Size of terminal reduced if access moves too far east</li> <li>✗ Queuing from intersection</li> </ul>
Modifying Profiles	<ul style="list-style-type: none"> <li>✓ Addresses most uphill climb, downhill stopping issues</li> <li>✓ Left turn safety</li> </ul>	<ul style="list-style-type: none"> <li>✗ Costs and visual effects</li> </ul>

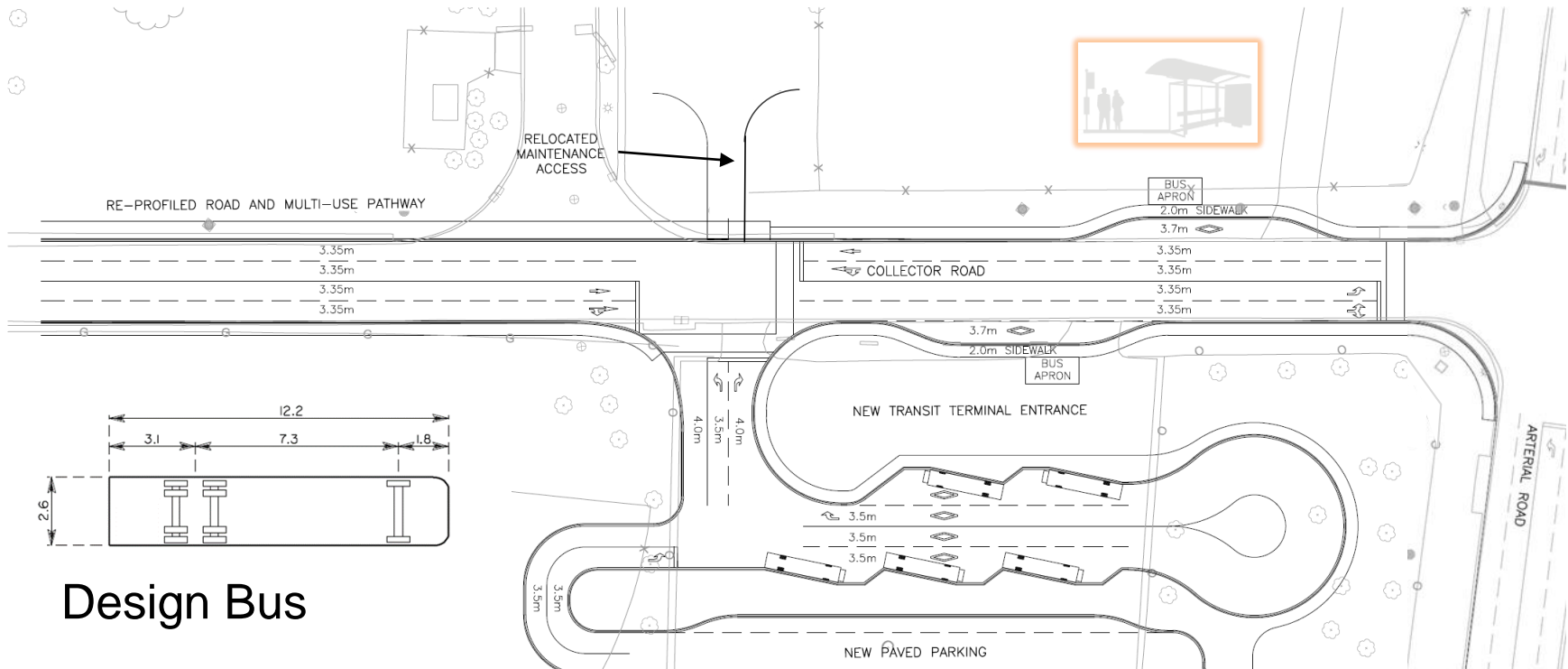
## EVALUATION

## Profile



## FUNCTIONAL DESIGN - 1

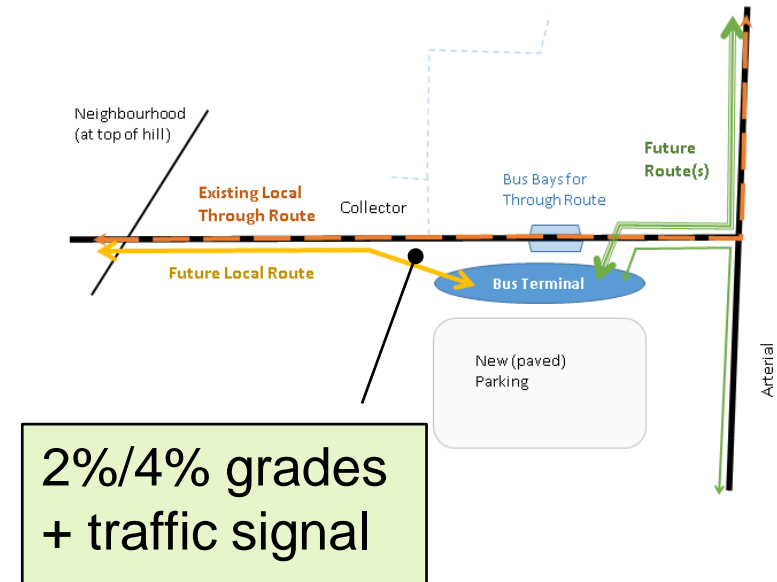
# Layout



## FUNCTIONAL DESIGN - 2

## Summary

- Planned future transit terminal
- Logical location:
  - Entrance away from traffic queue
  - At the base of existing 11%+ hill
- Considered intersection control, alignment and profile options
- Selected functional design includes re-profiling to “average out” the grades
- Traffic signal [in future] to facilitate operations



## CONCLUSIONS