5 reasons why we won’t achieve level 5 autonomy anytime soon, if ever
# Autonomous Vehicles

## Automation Levels of Autonomous Cars

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 0</strong></td>
<td>There are no autonomous features.</td>
</tr>
<tr>
<td><strong>Level 1</strong></td>
<td>These cars can handle one task at a time, like automatic braking.</td>
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<tr>
<td><strong>Level 2</strong></td>
<td>These cars would have at least two automated functions.</td>
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<tr>
<td><strong>Level 3</strong></td>
<td>These cars handle “dynamic driving tasks” but might still need intervention.</td>
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<tr>
<td><strong>Level 4</strong></td>
<td>These cars are officially driverless in certain environments.</td>
</tr>
<tr>
<td><strong>Level 5</strong></td>
<td>These cars can operate entirely on their own without any driver presence.</td>
</tr>
</tbody>
</table>

*Source: SAE International*
Reason 1: Airplanes still are still at level 4
Reason 2: Technology revolutions do not tend to work this way (beware of salesmen)
Reason 3: From an economic perspective, why aren’t more people sharing right now?
Reason 4: The greatest benefits of automation are achieved before level 5

Vehicular Deaths in the U.S.
Reason 5: The urban environment is too complex and risky for level 5 Autonomous Vehicles
This is what we *are* doing
Unsolicited Proposals: Background

In February 2016, Metro opened its doors to the private sector, at an Industry Forum. Pledged our commitment to pursuing agency-wide innovation:

> Focus on partnerships-based approach to drive value
> Debuted the Unsolicited Proposal Policy
  - Any company can submit a proposal on any idea
  - Encourages the private sector to tell us what we should do differently
Status of Unsolicited Proposals

- Total = 81

- 61% Total Implemented
- 17% Total Active Phase II
- 11% Total in process of Implementation
- 7% Total Advanced to Proof of Concept (not Phase II)
- 3% Total Active Phase I

Total = 81
Types of Unsolicited Proposals

Includes UPs implemented in implementation. Does not include declined UPs

Breakdown of UPs by Category

- Active Major Capital: 34%
- Active Tech Enabled Mobility Services: 22%
- Active Safety, Security and Asset Management: 22%
- Active Other: 22%

Total = 32
Unsolicited Proposals: Results

To date, OEI has received 81 proposals

> Reviewed 77 concepts

> Advanced 22 for detailed review

> Received 8 detailed “Phase II” proposals

> Brought 11 to implementation phase

- Engaged over 100 internal subject matter experts
- Received 10 proposals for megaprojects or major financing initiatives
- Other innovation pilots include data management, micro transit, mobile tolling, unmanned vehicles, and more.
OEI has advanced 3 megaprojects based on unsolicited proposals

- West Santa Ana Branch Transit Corridor
  - Will be a competitive P3
- Sepulveda Pass Transit Corridor
  - Will be a Project Development Agreement (PDA)
- Strategic Managed Lanes Network
  - Toll bond underwriting pool
Can smartphones replace ExpressLanes infrastructure and improve system performance?

- Reduce need for gantries and transponders
- Increase ExpressLanes user base
- Reduce toll evasion and “leakage”
- Improve customer experience and convenience

Reduce costs
Could more accurate ETAs when riders need them most improve customer confidence?

- Evidence that poor arrival info hurts rider retention
- Improved arrival prediction + better bus location data
- Prediction accuracy improves as bus nears
- **More certainty for customer, especially to avoid missed pick ups**
Could better bike access at stations allow more people to bike to Metro with fewer bikes on board trains?

- Stronger locks and CCTV
- Shared-use, free to customer
- Accessible via walk-up or app
  - Potential TAP integration
- Complements other bike planning initiatives
Vehicle-to-Infrastructure Communication

Can better information help Bus Operators catch more green lights on the Orange Line?

> Faster, smoother ride for customers
> More service with fewer buses
> Reduced fuel consumption
> Software development planned for small scale pilot
Mobility on Demand

Partner with a transportation network company to provide better and more equitable access to 3 pilot transit stations

TNC TO BE NAMED LATER
THANK YOU