OUTLINE

1. GENERAL OVERVIEW of HIGHWAY NETWORK
2. ROAD FINANCING IN TURKEY
3. HIGHWAY INVESTMENTS AND PPP MOTORWAY PROJECTS
4. CONCLUSIONS
GENERAL OVERVIEW of HIGHWAY NETWORK
The road network excluding urban roads is about 385,000 km in length.
- Total road network is 67.498 km.
- 38% of total road network (25.709 km) is dual carriageway

- Total Replacement Value: 67 Billion $
- Road Density: 50 km / 100 km$^2$ (Excl. Urban Roads)
- Motorway Density: 3.34 km/ 1000 km$^2$
ROAD FINANCING IN TURKEY
National Budget
- Financing approximately 95% of road investment budget
- Road used related taxes and excise taxes on vehicle purchasing taxes directly go to the consolidated budget. Ministry of Finance collects all taxes and allocates those taxes to all public expenditures.

Toll Motorway Revenues
- 400 Million USD, covering 5% of total road investment budget
- Istanbul-Ankara toll rate is about 6 USD for 380 km (0.015 USD/km, 1.5 US Cents/km)
- Two intercontinental suspended bridges over Istanbul Strait 1.5 US $ for two way

PPP concessions for the construction of BOT motorways
- İstanbul-İzmir Motorway (Inc. İzmit Bay Crossing)
- Northern Marmara Motorway, Odayeri-Paşaköy Section (Inc. Yavuz Sultan Selim Cable Stayed Suspension Bridge) Project
### SOURCES OF FUNDING

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<tbody>
<tr>
<td>Toll(*)</td>
<td>0.380</td>
<td>0.390</td>
<td>0.400</td>
<td>0.400</td>
<td>0.400</td>
<td>0.410</td>
<td>0.410</td>
</tr>
<tr>
<td>Loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Etc. ($)</td>
<td>6,860</td>
<td>7,400</td>
<td>5,950</td>
<td>5,770</td>
<td>4,850</td>
<td>4,990</td>
<td>5,090</td>
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<tr>
<td>Total ($)</td>
<td>7,240</td>
<td>7,790</td>
<td>6,350</td>
<td>6,170</td>
<td>5,250</td>
<td>5,400</td>
<td>5,500</td>
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(*) Excluding PPP toll revenues and current expenditures
### ROAD EXPENDITURES

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<tr>
<td>Maint.</td>
<td>0.49B</td>
<td>0.52B</td>
<td>0.45B</td>
<td>0.40B</td>
<td>-</td>
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<tr>
<td>Investments</td>
<td>6.75B</td>
<td>7.27B</td>
<td>5.90B</td>
<td>5.77B</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Total</td>
<td>7.24B</td>
<td>7.79B</td>
<td>6.35B</td>
<td>6.17B</td>
<td>-</td>
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</thead>
<tbody>
<tr>
<td>Maint.</td>
<td>6.7%</td>
<td>6.7%</td>
<td>7.0%</td>
<td>6.5%</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Investments</td>
<td>93.3%</td>
<td>93.3%</td>
<td>93%</td>
<td>93.5%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
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PERCENTAGE OF GDP USED FOR HIGHWAY INFRASTRUCTURE INVESTMENT

<table>
<thead>
<tr>
<th>Year</th>
<th>INVESTMENT 2016 Fixed Price (Billion $)</th>
<th>Perc. Of GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>1.70</td>
<td>0.42%</td>
</tr>
<tr>
<td>2004</td>
<td>2.30</td>
<td>0.46%</td>
</tr>
<tr>
<td>2005</td>
<td>3.15</td>
<td>0.52%</td>
</tr>
<tr>
<td>2006</td>
<td>3.80</td>
<td>0.60%</td>
</tr>
<tr>
<td>2007</td>
<td>4.14</td>
<td>0.53%</td>
</tr>
<tr>
<td>2008</td>
<td>6.30</td>
<td>0.74%</td>
</tr>
<tr>
<td>2009</td>
<td>5.93</td>
<td>0.87%</td>
</tr>
<tr>
<td>2010</td>
<td>8.52</td>
<td>1.05%</td>
</tr>
<tr>
<td>2011</td>
<td>8.88</td>
<td>1.06%</td>
</tr>
<tr>
<td>2012</td>
<td>7.54</td>
<td>0.91%</td>
</tr>
<tr>
<td>2013</td>
<td>7.62</td>
<td>0.90%</td>
</tr>
<tr>
<td>2014</td>
<td>7.24</td>
<td>0.89%</td>
</tr>
<tr>
<td>2015</td>
<td>7.79</td>
<td>1.08%</td>
</tr>
<tr>
<td>2016</td>
<td>6.35</td>
<td>0.74%</td>
</tr>
</tbody>
</table>
- 60% of Gasoline price and 52% of diesel price is tax. Tax rates of diesel is lower.
- Vehicle purchase taxes and annual motor vehicle taxes are determined according to engine size, age and type of vehicle.
- The revenues from the road related taxes, taxes on gasoline and diesel, vehicle purchase taxes, annual motor vehicle taxes are not tied to highway construction and maintenance.
FUEL TAXES IN SELECTED COUNTRIES ($/Liter)

- Belgium: Gasoline (1.07), Diesel (0.80)
- France: Gasoline (1.06), Diesel (0.80)
- Germany: Gasoline (1.11), Diesel (0.84)
- Italy: Gasoline (1.27), Diesel (1.12)
- Japan: Gasoline (0.59), Diesel (0.38)
- Netherlands: Gasoline (1.31), Diesel (0.89)
- UK: Gasoline (1.23), Diesel (1.24)
- USA: Gasoline (0.11), Diesel (0.13)
- Turkey: Gasoline (0.87), Diesel (0.68)

Legend: Blue = Gasoline (USD/Liter), Red = Diesel (USD/Liter)
In 2016, the total budget of Turkish Highway amounted to 8.5 Billion US $. Out of total budget,

- 60% on state and provincial road construction & upgrading
- 4% on motorway rehabilitation and operation,
- 7% on routine maintenance,
- 4% on routine road safety works,
- 6% on personnel expenditure,
- 17% on expropriation
- the remaining 2% on other current expenditures.

KGM's 2016 total expenditures is about 1% of Gross Domestic Product (GDP)
HIGHWAY INVESTMENTS AND PPP MOTORWAY PROJECTS
According to our National Road Program:
The road infrastructure investments are planned to ensure;

1. Staying competitive by reducing travel times and transport costs
2. Providing uninterrupted and safe road transportation
3. The improvement of mobility and road user comfort
4. Facilitating the distribution of economic prosperity to all regions of the country
MULTILANE DIVIDED HIGHWAY NETWORK (2003)

1.714 Km
MOTORWAY

4.387 Km
MULTILANE DIVIDED STATE&PROVINCIAL ROADS

6.101 Km
TOTAL

MULTILANE DIVIDED HIGHWAY NETWORK (October 2017)

2.622 Km
MOTORWAY

23.087 Km
MULTILANE DIVIDED STATE&PROVINCIAL ROADS

25.709 Km
TOTAL

HIGHWAY NETWORK: 63.143

HIGHWAY NETWORK: 67.418
Our organization has launched a challenging and ambitious motorway construction program. With regard to this expedited motorway construction program, up to now, a motorway network with a length of 2.622 km has been opened to traffic. Up to date, the total expenditure for motorway projects has been reached to approximately 25 Billion USD.
PPP MOTORWAY PROJECTS UNDER CONSTRUCTION
TURKEY’S PPP POLICY

GENERAL FEATURES OF BOT MOTORWAY CONTRACTS:

- Design specifications and standard are determined by GDH. (Project start-end points, corridor, technical requirements for special structures like suspension bridges)
- Traffic Guaranty will be provided to secure the pay back of the debt and equity if the generated revenue is not enough
- Expropriation costs are partly or wholly covered by Administration
- In case of the termination of Agreement, used loans will be paid by the Treasury
- The Tolls are updated every year based on the guidelines of United Nations Statistics Office
- Financing of project will be covered by the contractor as equity (at least 20%) and loan (80% at most)
PPP MOTORWAY PROJECTS UNDER CONSTRUCTION

- The Length of PPP motorway projects under construction
  - 1,200 km

- Total investment cost including suspended bridges
  - 13.7 Billion $

- Average investment cost
  - 11.5 Million $ per km

- Annual constructed motorway’s length
  - 228 km per year

- Average operating time
  - 10 years
TARGET 2023 BOT PROJECTS (UNDER CONSTRUCTION)

1. Gebze-Orhangazi-İzmir Motorway (185 km of 433 km is in operation)
2. North Marmara Motorway (Yavuz Sultan Selim Cable Stayed Suspension Bridge) Kınalı - Odayeri Section
3. North Marmara Motorway (Yavuz Sultan Selim Cable Stayed Suspension Bridge) Kurtköy - Akyazı Section
4. Kınalı-Tekirdağ-Çanakkale-Balıkesir Motorway Project (1915 Çanakkale Bridge Inc.)
5. Menemen-Aliağa-Çandarlı Motorway
6. Ankara - Niğde Otoyolu

MOTORWAYS IN OPERATION 2.622 Km

BOT PROJECTS UNDER CONSTRUCTION

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Length</th>
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</thead>
<tbody>
<tr>
<td>Gebze-Orhangazi-İzmir Motorway (185 km of 433 km is in operation)</td>
<td>433 km</td>
</tr>
<tr>
<td>North Marmara Motorway (Yavuz Sultan Selim Cable Stayed Suspension Bridge)</td>
<td>88 km</td>
</tr>
<tr>
<td>Kurtköy - Akyazı Section</td>
<td>169 km</td>
</tr>
<tr>
<td>Kınalı-Tekirdağ-Çanakkale-Balıkesir Motorway Project (1915 Çanakkale Bridge Inc.)</td>
<td>101 km</td>
</tr>
<tr>
<td>Menemen-Aliağa-Çandarlı Motorway</td>
<td>76 km</td>
</tr>
<tr>
<td>Ankara - Niğde Otoyolu</td>
<td>330 km</td>
</tr>
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### MOTORWAYS IN OPERATION

<table>
<thead>
<tr>
<th>BOT PROJECTS (TARGET)</th>
<th>1.023 km</th>
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<tbody>
<tr>
<td>1- Antalya-Alanya Motorway</td>
<td>187 km</td>
</tr>
<tr>
<td>2 – Ankara - İzmir Motorway</td>
<td>572 km</td>
</tr>
<tr>
<td>3 - Kınalı-Tekirdağ-Çanakkale-Balıkesir Motorway (Included Çanakkale Bridge) (Kınalı-Malkara and Çanakkale-Balıkesir Section)</td>
<td>251 km</td>
</tr>
<tr>
<td>4- İzmir Bay Passing</td>
<td>13 km</td>
</tr>
</tbody>
</table>
### TARGET 2035 BOT PROJECTS

<table>
<thead>
<tr>
<th>TARGET BOT PROJECTS (2. GROUP)</th>
<th>3,214 Km</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Aydın-Denizli-Burdur Motorway (Denizli-Burdur Sec.)</td>
<td>130 Km</td>
</tr>
<tr>
<td>2- Sivrihisar-Bursa Motorway</td>
<td>231 Km</td>
</tr>
<tr>
<td>3- Afyon-Antalya-Alanya Motorway (Afyon-Antalya Section)</td>
<td>350 Km</td>
</tr>
<tr>
<td>4- Gerede-Merzifon-Güerbulağ Motorway (Gerede-Merzifon Section)</td>
<td>336 Km</td>
</tr>
<tr>
<td>5- Delice-Samsun Motorway</td>
<td>303 Km</td>
</tr>
</tbody>
</table>

**FUNCTIONING & FINANCING OF NATIONAL ROAD MANAGEMENT IN TURKEY**

**TARGET 2035 BOT PROJECTS**

**MOTORWAYS IN OPERATION**

2,622 Km
TARGET MOTORWAY NETWORK

MOTORWAYS IN OPERATION (2.285+44 Km BOT)
TARGET 2023 BOT PROJECTS (UNDER CONSTRUCTION)
TARGET 2023 BOT PROJECTS (IN TENDERING PROCESS)
TARGET 2023 BOT PROJECTS (1.GROUP)
TARGET 2023 BOT PROJECTS (2.GROUP)

TOTAL: 8.247 KM
CONCLUSIONS
CONCLUSIONS

• It is important that road infrastructure investments are made on time to avoid negative effects on economy.

• In addition to the traditional direct budget allocations from general revenues, innovative financing mechanisms should be put into application for sustainable and efficient financing of road infrastructure. In this regard, Users have to pay for the quality of the service offered and collected toll revenues should be earmarked to the road infrastructure.

• Financing mechanism on the basis of PPP is one of the most effective alternative to realize large scale highway projects without causing public burden and reducing duration of the road construction works without waiting for the availability of public funding.

Successful PPP Projects needs;

• Government commitment
• Appropriate risk allocation between concession Authority and concessionaire
• Expropriation done by the Public side.
• Correct management of construction risks
• Toll rates are reasonable for traffic level
THANK YOU FOR YOUR ATTENTION!

Mücahit ARMAN
Deputy Director General

Kenan KAYACI
Director of Strategic Planning Division

General Directorate of Turkish Highways
Ministry of Transport, Maritime Affairs and Communications