EFFECTS OF COVID-19 ON TRANSPORTATION and AIR QUALITY

RISE Coalition Meeting
July 27, 2020

Vivek Thimma vajjha la
1. TRANSPORTATION

(ROADWAY)
Freeway Volumes During COVID-19 With Respect to February 2020

Traffic Decrease vs February 2020

- March: -10.9%
- April: -25.3%
- May: -16.0%
- June: -6.2%

Source: Traffic Radars on TxDOT Dallas and Fort Worth Districts
Average Speed on Freeways By Time of Day

Source: INRIX data delivered by FHWA through NPMRDS
Percentage of Crashes: March and April 2019 vs March and April 2020

Crashes and Fatalities: 2019 vs 2020

- March: 28% vs -19%
- April: 11% vs -47%
- May: 42% vs -37%
- June: 11% vs -18%

Source: TxDOT Crash Records Information System
2. AIR QUALITY
Regional Air Quality Impacts During COVID-19

- Emissions from vehicles reduced
- Lowest frequency of high-level, unhealthy, exposure days to ozone
- Cleaner air = blue(r) skies
- Leading to a healthier populous (under review)
- Real world analysis on local contributions suggest multi-state SIP’s to reduce background
- How Can We Sustain Impacts? (To be determined)
  - Electric and Fuel Cell Vehicles
  - Travel Demand Management (Telecommuting)

Exceedances influenced by meteorological conditions
# North Central Texas Ozone Comparison

<table>
<thead>
<tr>
<th>Month</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Days</td>
<td>3 Year Design Value</td>
<td>Days</td>
<td>3 Year Design Value</td>
</tr>
<tr>
<td>March</td>
<td>2 yellow days</td>
<td>8 yellow days</td>
<td>10 yellow days</td>
<td>3 yellow days</td>
</tr>
<tr>
<td></td>
<td>High: 62 at Eagle Mtn Lake</td>
<td>High: 63 at Denton</td>
<td>High: 66 at Cleburne</td>
<td>High: 64 at Pilot Point</td>
</tr>
<tr>
<td>April</td>
<td>10 yellow days</td>
<td>16 yellow days</td>
<td>12 yellow days</td>
<td>8 yellow days</td>
</tr>
<tr>
<td></td>
<td>High: 68 at Dallas Hinton</td>
<td>High: 81 at Dallas North</td>
<td>High: 69 at Greenville</td>
<td>High: 69 at Rockwall</td>
</tr>
<tr>
<td>May</td>
<td>15 yellow days</td>
<td>9 yellow days</td>
<td>6 yellow days</td>
<td>10 yellow days</td>
</tr>
<tr>
<td></td>
<td>5 orange days</td>
<td>6 orange days</td>
<td>5 orange days</td>
<td>3 orange days</td>
</tr>
<tr>
<td></td>
<td>High: 80 at Dallas North</td>
<td>High: 80 at Dallas North</td>
<td>High: 80 at Pilot Point</td>
<td>High: 69 at Grapevine Fairway</td>
</tr>
<tr>
<td>June</td>
<td>6 yellow days</td>
<td>7 yellow days</td>
<td>12 yellow days</td>
<td>16 yellow days</td>
</tr>
<tr>
<td></td>
<td>4 orange days</td>
<td>2 orange days</td>
<td>5 orange days</td>
<td>5 orange days</td>
</tr>
<tr>
<td></td>
<td>High: 84 at Cleburne Airport</td>
<td>High: 85 at Dallas North</td>
<td>High: 76 at Frisco</td>
<td>High: 77 at Eagle Mountain Lake</td>
</tr>
<tr>
<td>July</td>
<td>14 yellow days</td>
<td>14 yellow days</td>
<td>6 yellow days</td>
<td>12 yellow days</td>
</tr>
<tr>
<td></td>
<td>3 orange days</td>
<td>8 orange days</td>
<td>7 orange days</td>
<td>3 orange days</td>
</tr>
<tr>
<td></td>
<td>High: 81 at Cleburne Airport</td>
<td>High: 81 at Granbury</td>
<td>High: 83 at Cleburne Airport</td>
<td>High: 69 at Dallas North</td>
</tr>
</tbody>
</table>

Data Source: TCEQ
Data Analysis: NCTCOG

* as of July 23, 2020. At this time last year (July 23, 2019), there were five Yellow days and two Orange days.
Cumulative Ozone Exceedances, 2016-2020

Historical Ozone Cumulative Weekly Exceedances: 2016-2020
(Starting Week 21)

74 ppb, as of 7/20/2020 starting week 21

Five year comparison showing the frequency of how often the general public is exposed to unhealthy levels of ozone.

Data Source: Texas Commission on Environmental Quality
Data Analysis: North Central Texas Council of Governments
Weekly Ozone Design Values, 2016-2020

Historical Ozone Season Weekly Design Values: 2016-2020
(Starting Week 21)

2008 Standard ≤ 75 ppb (Serious by 2021)

2015 Standard ≤ 70 ppb (Marginal by 2021)

74 ppb, as of 7/20/2020 starting week 21

A five year comparison in the changes of the yearly design value, per year, as the ozone season progresses.

Data Source: Texas Commission on Environmental Quality
Data Analysis: North Central Texas Council of Governments
Regional Monitor Data: Daily Average Emission Concentrations

Change in Average Daily Concentrations Compared to February 2020

- NOx
- Ozone

Mar
-23%
-7%

Apr
27%
-41%

May
45%
-45%

Jun
33%
-51%

Source: TCEQ
Regional Nitrogen Dioxide (NO$_2$) Tracking

February 2020

Week of March 29, 2020
Regional Nitrogen Dioxide (NO₂) Monitor Data

Average Daily NO₂ Concentrations in 2020: As of 7/1/2020

Source: TCEQ
Data Analysis: NCTCOG

Percent Change Compared to February

February: 0.00%
March: -19.38%
April: -29.70%
15-May: -36.26%
31-May: -31.76%
June: -33.16%
July: -40.00%
August: -35.00%
September: -30.00%
October: -25.00%
November: -20.00%
December: -15.00%

Average Daily NO₂ Concentrations (ppb)
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