

# Transportation Alternatives Porter Avenue

from Alameda Street to Robinson Street

The Porter Avenue Corridor Study  
City Council Study Session

March 30, 2010



# Alternative No. 1

DO NOTHING

# Northbound Porter Avenue, south of Main Street



# Northbound Porter Avenue, south of Hughbert Street



# Alternative No. 1 – Do Nothing

- Description - Maintain existing roadway facility in its current form
- Road constructed in the 1950's
- Typical Section – curb and gutter urban roadway with four 9.5-foot wide lanes
- Total roadway width – 40 feet
- Right-of-way width – 60 Feet
- Additional right-of-way needed – None
- Norman 2025 Land Use and Transportation Plan Classification – Principal Urban Arterial
- OCARTS 2030 Classification – Minor Arterial Highway
- Cost of Traffic Collisions (from January 1, 2004 to October 31, 2009) - \$3,399,000
  - 226 Property Damage Collisions
  - 111 Injury Collisions
  - 1 Fatal Collision
  - Collision Rate – 7.51 collisions per million vehicle miles traveled (Lindsey Street – 11.89, Main Street – 7.98, 12<sup>th</sup> Avenue East – 5.59, Robinson Street – 4.69)
- Pavement Condition – Fair (70)
- Major Recurring Maintenance Cost (every 10 years) - \$200,000
- Routine Annual Maintenance Cost - \$2,000

# Alternative No. 1 – Do Nothing

- Average Daily Traffic Volumes
  - Between Alameda Street and Main Street – 21,157 vehicles per day (2/11/2009)
- 2030 Traffic Projections (2% increase per year)
  - Between Alameda Street and Main Street – 31,437 vehicles per day
- Level of Service Capacity (for four lane roadway with Narrow Lanes – 10% reduction)
  - LOS 'C' = 19,800 vehicles per day
  - LOS 'D' = 25,295 vehicles per day
  - LOS 'E' = 30,780 vehicles per day
- Reserved Traffic Capacity
  - 2010 – LOS 'C' = 0.00 % / LOS 'D' = 16.36% / LOS 'E' = 31.27%
  - 2030 – LOS 'C' = 0.00 % / LOS 'D' = 0.00% / LOS 'E' = 0.00%
- Average Travel Speed
  - PM Peak (2010) – 14 mph
  - PM Peak (2030) – 7 mph
- Fuel Economy
  - PM Peak (2010) – 11.2 mpg
  - PM Peak (2030) – 7.2 mpg
- Emissions
  - PM Peak (2010) – CO = 8.05 Kg / NO<sub>x</sub> = 1.57 Kg / VOC = 1.87 Kg
  - PM Peak (2030) – CO = 18.59 Kg / NO<sub>x</sub> = 3.62 Kg / VOC = 4.31 Kg

# Alternative No. 2

Four-Lane Improved Roadway  
(Two Lanes per Direction) plus Modern  
Roundabouts at Alameda Street and Acres  
Street

# Eastbound Robinson Street, east of Carter Avenue



# Westbound Main Street, west of 12<sup>th</sup> Avenue NE



# Westbound Main Street, approaching the Carter Avenue Modern Roundabout



# Alternative No. 2 – Four-Lane Improved

- Description – Reconstruct roadway as a four lane facility in accordance with current City, State and Federal standards (two lanes per direction of travel plus), modern roundabouts at the intersections with Alameda Street and Acres Street, and access management improvements)
- Typical Section – curb and gutter urban roadway with four lanes (two per direction of travel) (13-foot wide outside lanes and 12-foot inside lanes)
- Total roadway width – 52 feet
- Right-of-way width – 100 Feet
- Additional right-of-way needed – 40 feet (20 feet per side)
- Consistent with Norman 2025 Land Use and Transportation Plan Classification – Principal Urban Arterial
- Consistent with OCARTS 2030 Classification
- Cost of Traffic Collisions (Projected 50% Reduction) - \$1,699,500 over five years
- Pavement Condition – Excellent (100)
- Major Recurring Maintenance Cost (every 10 years) - \$0
- Routine Annual Maintenance Cost - \$1,000

# Alternative No. 2 – Four-Lane Improved

- Average Daily Traffic Volumes
  - Between Alameda Street and Main Street – 21,157 vehicles per day (2/11/2009)
- 2030 Traffic Projections (2% increase per year)
  - Between Alameda Street and Main Street – 31,437 vehicles per day
- Level of Service Capacity
  - LOS 'C' = 22,000 vehicles per day
  - LOS 'D' = 28,100 vehicles per day
  - LOS 'E' = 34,200 vehicles per day
- Reserved Traffic Capacity
  - 2010 – LOS 'C' = 3.83 % / LOS 'D' = 24.71% / LOS 'E' = 38.14%
  - 2030 – LOS 'C' = 0.00 % / LOS 'D' = 0.00% / LOS 'E' = 8.08%
- Average Travel Speed
  - PM Peak (2010) – 21 mph
  - PM Peak (2030) – 14 mph
- Fuel Economy
  - PM Peak (2010) – 12.5 mpg
  - PM Peak (2030) – 9.9 mpg
- Emissions
  - PM Peak (2010) – CO = 7.21 Kg / NO<sub>x</sub> = 1.40 Kg / VOC = 1.67 Kg
  - PM Peak (2030) – CO = 13.49 Kg / NO<sub>x</sub> = 2.62 Kg / VOC = 3.13 Kg

# Alternative No. 3

Three-Lane Roadway

(One Lane per Direction plus a  
continuous Two-Way Left Turn Lane  
and Modern Roundabouts at Alameda  
Street and Acres Street)

# Eastbound Lindsey Street, east of 24<sup>th</sup> Avenue SW



# Eastbound Lindsey Street, east of McGee Drive



# Alternative No. 3 – Three-Lane

- Description – Reconstruct roadway using the existing width and stripe three traffic lanes (one per direction of travel plus one continuous two-way left turn lanes), modern roundabouts at the intersections with Alameda Street and Acres Street, and access management improvements)
- Typical Section – curb and gutter urban roadway with two 13-foot wide lanes (one per direction of travel) plus a 14-foot continuous two way left turn lane
- Total roadway width – 40 feet
- Right-of-way width – 60 Feet
- Additional right-of-way needed – None
- Inconsistent with Norman 2025 Land Use and Transportation Plan Classification – Principal Urban Arterial
- Inconsistent with OCARTS 2030 Classification
- Cost of Traffic Collisions (Projected 37% Reduction) - \$2,141,370 over five years
- Pavement Condition – Excellent (100)
- Major Recurring Maintenance Cost (every 10 years) - \$0
- Routine Annual Maintenance Cost - \$1,000

# Alternative No. 3 – Three-Lane

- Average Daily Traffic Volumes
  - Between Alameda Street and Main Street – 21,157 vehicles per day (2/11/2009)
- 2030 Traffic Projections (2% increase per year)
  - Between Alameda Street and Main Street – 31,437 vehicles per day
- Level of Service Capacity
  - LOS 'C' = 12,000 vehicles per day
  - LOS 'D' = 15,600 vehicles per day
  - LOS 'E' = 19,200 vehicles per day
- Reserved Traffic Capacity
  - 2010 – LOS 'C' = 0.00 % / LOS 'D' = 0.00% / LOS 'E' = 0.00%
  - 2030 – LOS 'C' = 0.00 % / LOS 'D' = 0.00% / LOS 'E' = 0.00%
- Average Travel Speed
  - PM Peak (2010) – 17 mph
  - PM Peak (2030) – 6 mph
- Fuel Economy
  - PM Peak (2010) – 10.9 mpg
  - PM Peak (2030) – 5.5 mpg
- Emissions
  - PM Peak (2010) – CO = 8.23 Kg / NO<sub>x</sub> = 1.60 Kg / VOC = 1.91 Kg
  - PM Peak (2030) – CO = 24.37 Kg / NO<sub>x</sub> = 4.74 Kg / VOC = 5.65 Kg

# Alternative No. 4

Five-Lane Roadway

(Two Lanes per Direction plus a continuous Two-Way Left Turn Lane and Modern Roundabouts at Alameda Street and Acres Street)

# Eastbound Robinson Street, east of Porter Avenue



# Alternative No. 4 – Five-Lane

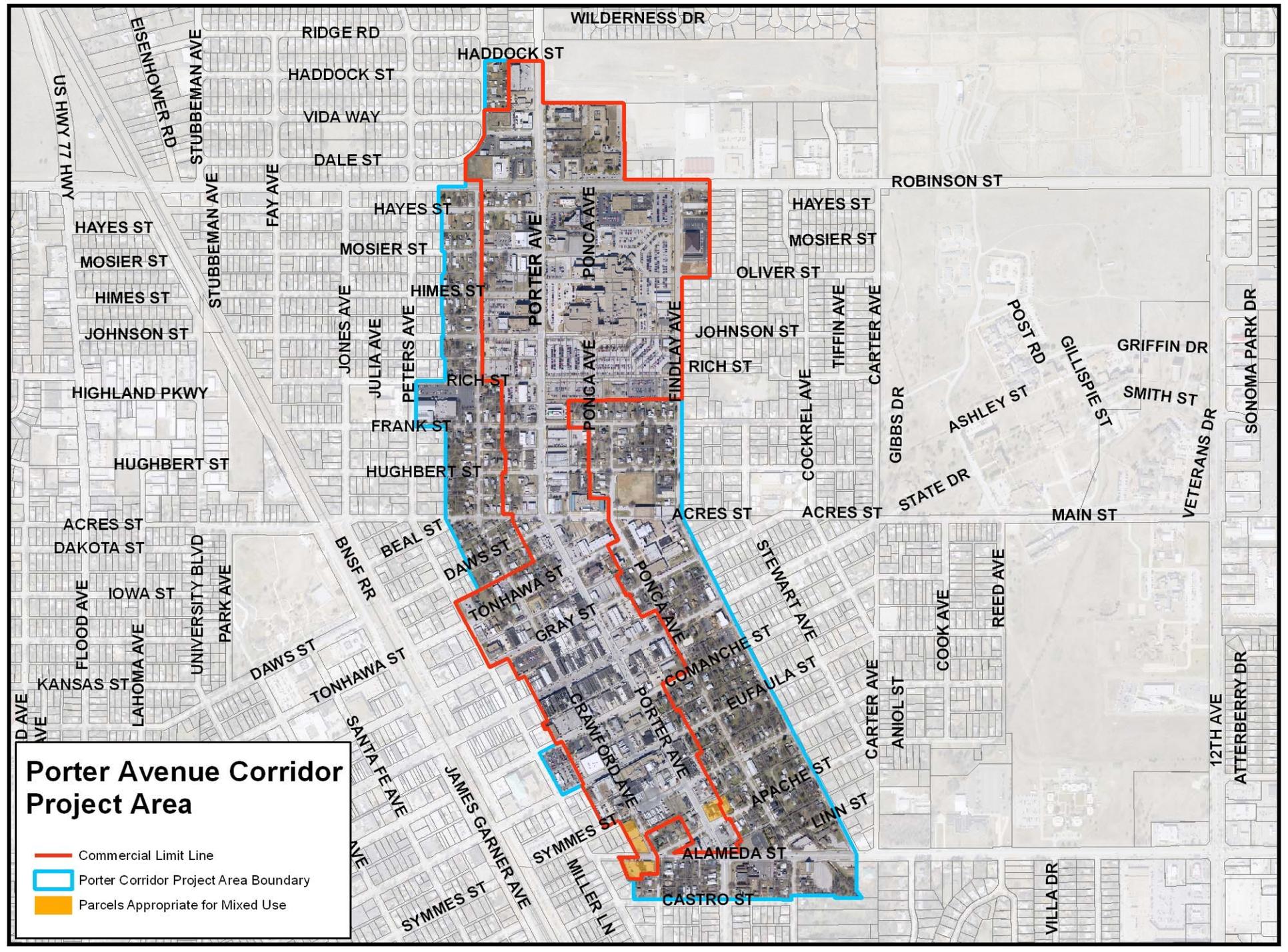
- Description – Reconstruct roadway as a five lane facility in accordance with current City, State and Federal standards (two lanes per direction of travel plus) plus one continuous two-way left turn lane, modern roundabouts at the intersections with Alameda Street and Acres Street, and access management improvements)
- Typical Section – curb and gutter urban roadway with five lanes (two per direction of travel plus one continuous two-way left turn lane) (13-foot wide outside lanes and 12-foot inside lanes and 14-foot center lane)
- Total roadway width – 64 feet
- Right-of-way width – 120 Feet
- Additional right-of-way needed – 60 feet (30 feet per side)
- Consistent with Norman 2025 Land Use and Transportation Plan Classification – Principal Urban Arterial
- Consistent with OCARTS 2030 Classification
- Cost of Traffic Collisions (Projected 60% Reduction) - \$1,659,600 over five years
- Pavement Condition – Excellent (100)
- Major Recurring Maintenance Cost (every 10 years) - \$0
- Routine Annual Maintenance Cost - \$1,000

# Alternative No. 4 – Five-Lane

- Average Daily Traffic Volumes
  - Between Alameda Street and Main Street – 21,157 vehicles per day (2/11/2009)
- 2030 Traffic Projections (2% increase per year)
  - Between Alameda Street and Main Street – 31,437 vehicles per day
- Level of Service Capacity
  - LOS 'C' = 24,000 vehicles per day
  - LOS 'D' = 30,000 vehicles per day
  - LOS 'E' = 36,000 vehicles per day
- Reserved Traffic Capacity
  - 2010 – LOS 'C' = 11.85 % / LOS 'D' = 29.48% / LOS 'E' = 41.23%
  - 2030 – LOS 'C' = 0.00 % / LOS 'D' = 0.00% / LOS 'E' = 12.67%
- Average Travel Speed
  - PM Peak (2010) – 21 mph
  - PM Peak (2030) – 16 mph
- Fuel Economy
  - PM Peak (2010) – 12.4 mpg
  - PM Peak (2030) – 10.7 mpg
- Emissions
  - PM Peak (2010) – CO = 7.24 Kg / NO<sub>x</sub> = 1.41 Kg / VOC = 1.68 Kg
  - PM Peak (2030) – CO = 12.49 Kg / NO<sub>x</sub> = 2.43 Kg / VOC = 2.90 Kg

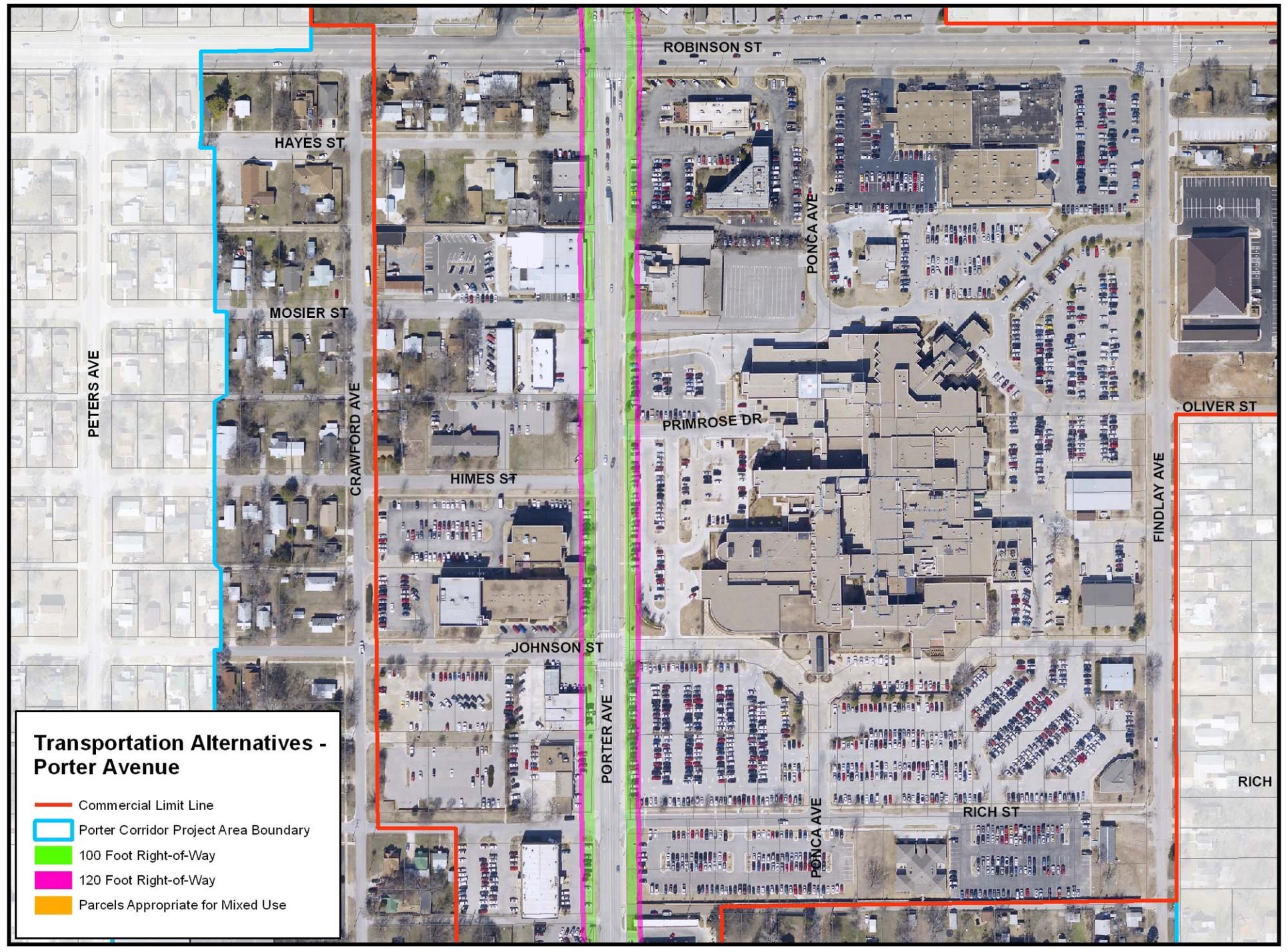
# Porter Avenue Corridor Project Area

-  Commercial Limit Line
-  Porter Corridor Project Area Boundary
-  Parcels Appropriate for Mixed Use



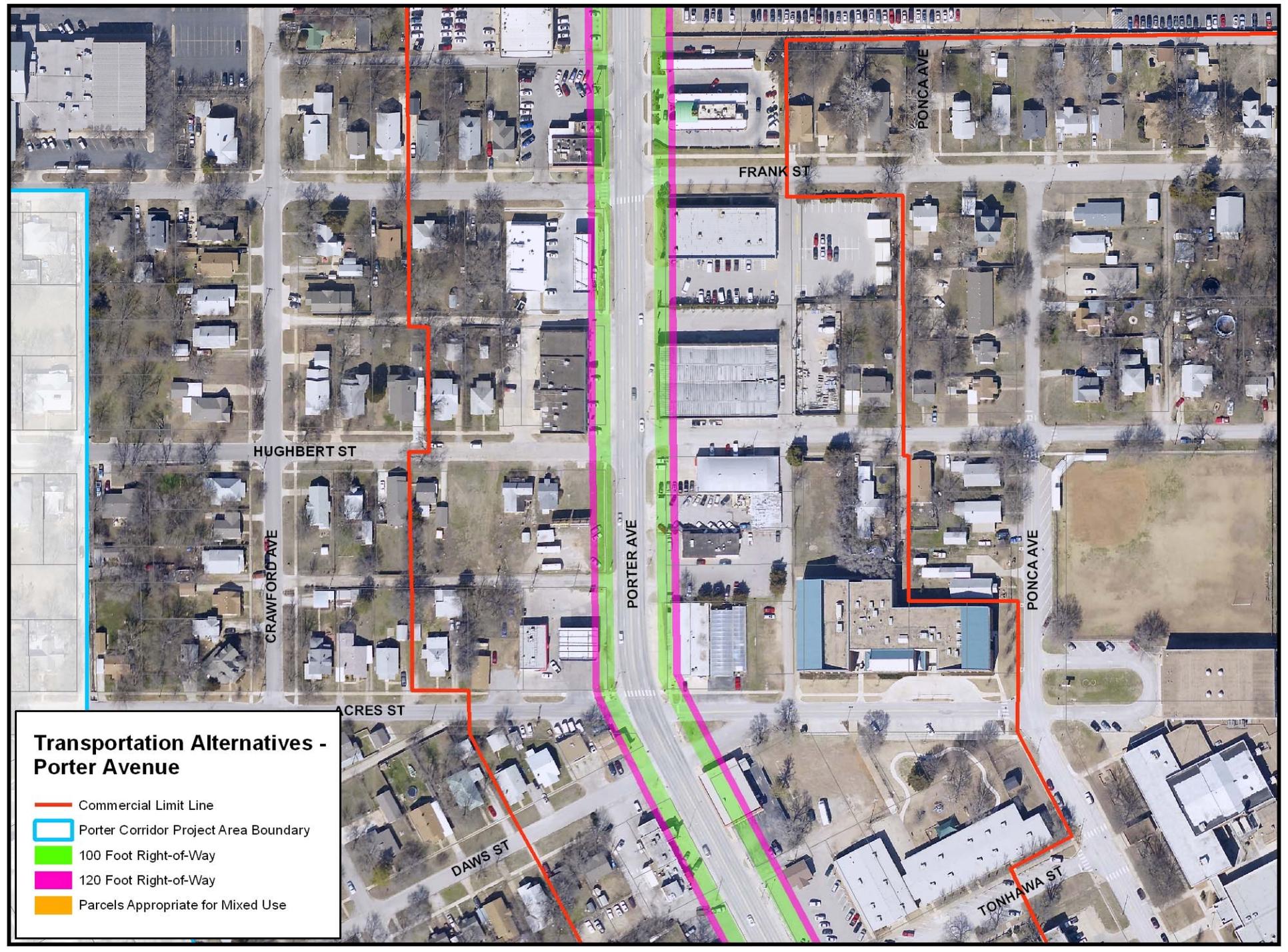
## Transportation Alternatives - Porter Avenue

- Commercial Limit Line
- Porter Corridor Project Area Boundary
- 100 Foot Right-of-Way
- 120 Foot Right-of-Way
- Parcels Appropriate for Mixed Use



## Transportation Alternatives - Porter Avenue

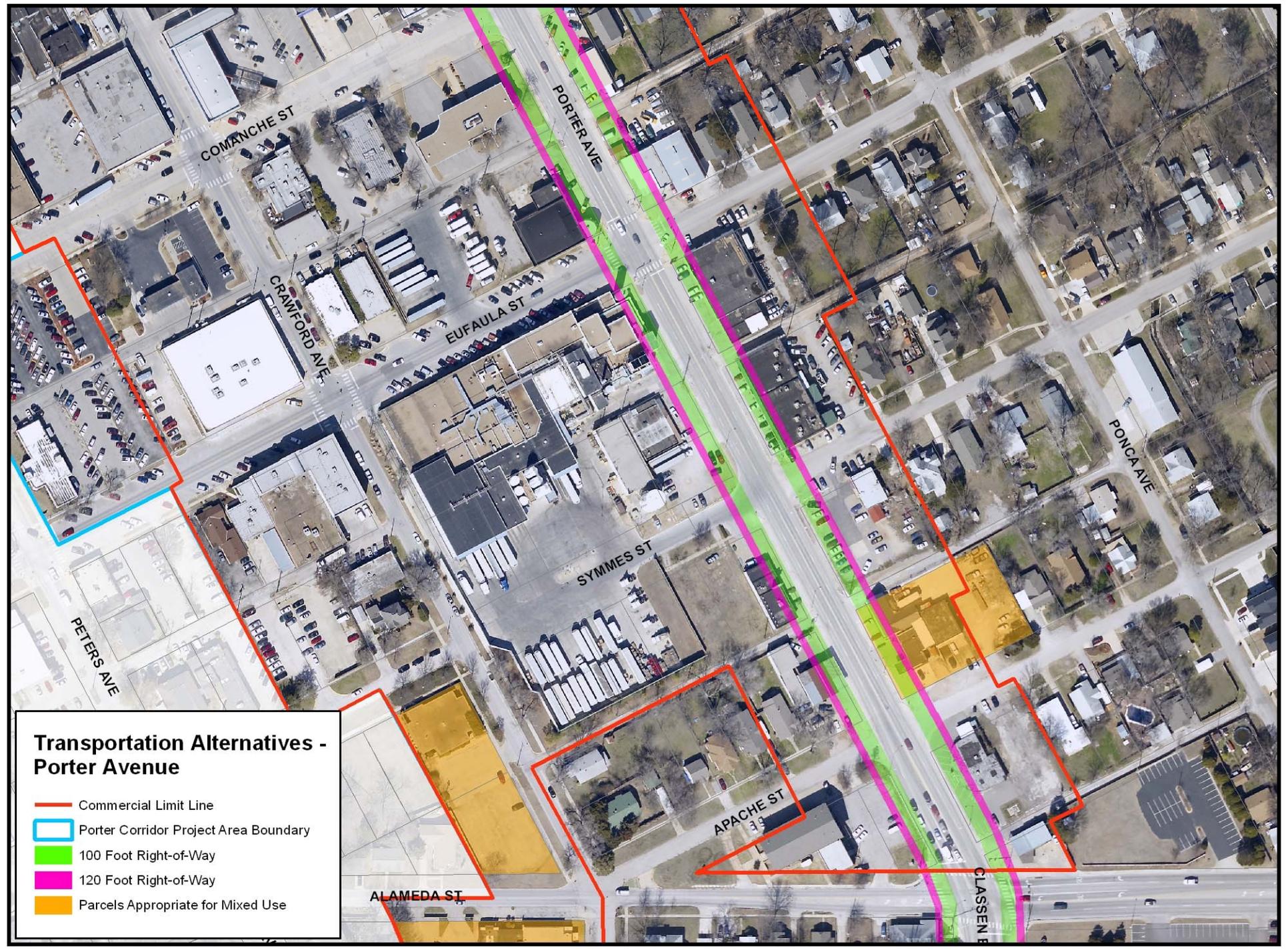
- Commercial Limit Line
- Porter Corridor Project Area Boundary
- 100 Foot Right-of-Way
- 120 Foot Right-of-Way
- Parcels Appropriate for Mixed Use





## Transportation Alternatives - Porter Avenue

- Commercial Limit Line
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- Commercial Limit Line
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- 120 Foot Right-of-Way
- Parcels Appropriate for Mixed Use

# Decision Making Factors

Transportation Function	Mobility	Traffic Safety	Reserved Capacity	Emissions	Preservation of Corridor Character	Pedestrian Friendliness	Cost	Aesthetics

Transportation Function:

Porter Avenue's ability to distribute traffic throughout the City and link major community-wide traffic generators

Mobility:

Efficiency of traffic flow on Porter Avenue

Traffic Safety:

Reduction of frequency and severity of traffic collisions

Reserved Capacity:

Additional capacity to accommodate future traffic growth

Emissions:

Minimize the volume of Volatile Organic Compounds (VOC) from vehicle emissions

Preservation of Corridor Character:

Maintain the current character of the Porter Avenue corridor (e.g., preservation of existing buildings)

Pedestrian Friendliness:

Improve the environment for pedestrians to walk along and across the corridor.

Cost:

The scope of the project should be defined to minimize cost

Aesthetics:

The Porter Avenue corridor needs to be landscaped and beautified

You have 100 points to assign among the various factors. Please divide the points in a way that reflects your priorities for the Porter Avenue corridor. The more points you assign to any given factor, the more important the factor is to you. Remember, you only have 100 total points to use among the nine different factors.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

# Decision Making Matrix

(Not Weighted – Using Engineering Criteria and Traffic Modeling)

Alternative No.	Description	Transportation Function	Mobility	Traffic Safety	Reserved Capacity	Emissions	Corridor Preservation	Pedestrian Friendliness	Cost	Aesthetics	Total
1	Do Nothing	2	2	1	2	1	4	1	4	1	18
2	Four-Lane Improved	3	3	3	3	3	2	3	2	3	24
3	Three Lanes	1	1	2	1	2	4	4	3	4	23
4	Five Lanes	4	4	4	4	4	1	2	1	2	26

# Decision Making Factors

(Porter Avenue Steering Committee Scores and Priorities)

	Transportation Function	Mobility	Traffic Safety	Reserved Capacity	Emissions	Corridor Preservation	Pedestrian Friendliness	Cost	Aesthetics
<b>Score</b>	9.36	10.36	12.95	3.50	3.41	21.27	15.45	6.41	17.27
<b>Ranking</b>	6	4	5	8	9	1	3	7	2

# Decision Making Matrix

(Weighted – Using Porter Avenue Steering Committee Input)

Alternative No.	Description	Transportation Function	Mobility	Traffic Safety	Reserved Capacity	Emissions	Corridor Preservation	Pedestrian Friendliness	Cost	Aesthetics	Total
1	Do Nothing	18.73	20.73	12.95	7.00	3.41	85.09	15.45	25.64	17.27	206.27
2	Four-Lane Improved	28.09	31.09	38.86	10.50	10.23	42.55	46.33	12.82	51.82	272.31
3	Three Lanes	9.36	10.36	25.91	3.50	6.82	85.09	61.82	19.23	69.09	288.19
4	Five Lanes	37.45	41.45	51.82	14.00	13.64	21.27	30.91	6.41	34.55	251.50