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CLARK COUNTY  
WASHINGTON

## COMMUNITY PLANNING

### STAFF REPORT

TO: Clark County Planning Commission

FROM: Oliver Orjiako, Director

PREPARED BY: Mike Mabrey, Planner III

DATE: July 25, 2013

SUBJECT: CPZ2013-00002 Ward Rd. / NE 172<sup>nd</sup> Ave Amendments

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#### PROPOSED ACTION:

The proposed amendments to the Arterial Plan Map would:

- Change Ward Rd. between NE 88th Street and NE 172nd Avenue from a Principal Arterial (Pr-4cb) to a Minor Arterial (M-2cb);
- Change NE 172nd Avenue between Ward Rd and NE 99th Street from a Rural Major Collector (R-2) to a Minor Arterial (M-2cb);
- Change NE 172nd Avenue between NE 99th Street and NE 119th Street from a Rural Major Collector (R-2) to a Rural Minor Collector (Rm-2);
- Delete the future extension of NE 99th Street between NE 172nd Ave and Ward Rd.; and
- Classify all of Ward Rd from NE 172nd Avenue to NE 119th Street as a Rural Major Collector (R-2).

#### BACKGROUND:

In preparation for a capital improvement project to construct a replacement bridge over China Ditch along Ward Road, there was a significant public involvement process which resulted in two factions recommending different alternatives. The first alternative was to improve Ward Rd. generally on the existing alignment with some improvements at the curves. The second was to route the north-south through traffic destined for Hockinson and points north to NE 172<sup>nd</sup> Avenue, with the expectation that a future road could be constructed that would bypass Hockinson north of the middle school at the intersection of 159<sup>th</sup> St. and 182<sup>nd</sup> Ave.

County staff initially began designing the project based on the second alternative. However, a safety audit of the project conducted by the Federal Highway Administration in 2005 strongly advised against this project concept due to a significant increase in crash risk with this design. The project was re-configured to reduce conflict points and in recognition of the fact that Ward Road / NE 182<sup>nd</sup> Avenue would continue to be the dominant route.

It is important that the Arterial Plan Map amendments reflect the reality of the road network in this area. For instance, rural major collector roads (R-2) are eligible for Federal aid funding, while rural minor collectors (Rm-2) are not.

## **GENERAL INFORMATION:**

Location: NE 172<sup>nd</sup> Avenue and Ward Road from NE 88<sup>th</sup> Street to NE 119<sup>th</sup> Street

Existing land use designations: Most parcels north of the bridge are zoned Agriculture (AG-20) with some Rural (R-5) and Urban Reserve (UR-10) areas. South of the bridge is a mix of urban residential zoning including R1-7.5 and R-12.

## **APPLICABLE CRITERIA, EVALUATION OF REQUEST AND FINDINGS**

The Unified Development Code (UDC 40.560.010 N) delineates specific criteria that apply to Arterial Plan Map amendments.

- a. *There a need for the proposed change.*
- b. *The proposed change is compliant with the Growth Management Act*
- c. *The proposed change is consistent with the adopted comprehensive plan, including the land use plan and the rest of the Arterial Atlas.*
- d. *The proposed change is consistent with applicable interlocal agreements; and*
- e. *The proposed change is does not conflict with the adopted Metropolitan Transportation Plan*

In order to comply with the Plan Amendment Procedures in the Clark County Unified Development Code (UDC 40.560.010), requests to amend the Arterial Atlas must meet all of the criteria in Section N.

## **CRITERIA FOR ARTERIAL PLAN MAP AMENDMENTS**

### **a. There a need for the proposed change.**

Finding: A change is needed to ensure that the Arterial Plan Map reflects the reality of the road network in this area and that major rural roads such as Ward Road are eligible for Federal funding.

### **b. The proposed change is compliant with the Growth Management Act.**

The GMA goals set the general direction for the county in adopting its framework plan and comprehensive plan policies. The most pertinent GMA goals that apply to this proposal are Goals 3 and 12

*(3) Transportation. Encourage efficient multimodal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans.*

*(12) Public Facilities and Services. Ensure that those public facilities and*

*services necessary to support development shall be adequate to serve development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.*

Finding: The proposed amendments are consistent with existing and planned the transportation system in this area which will maintain regional mobility and therefor support the comprehensive plan. Goal 12 addresses concurrent development of infrastructure. Ward Road is a concurrency corridor from Fourth Plain to Davis Road with a minimum travel speed standard of 13 m.p.h. NE 182<sup>nd</sup> Avenue is a concurrency corridor between Davis Road and Risto Road with a minimum travel speed standard of 27 m.p.h. Both segments are operating well within these standards.

**c. The proposed change is consistent with the adopted comprehensive plan, including the land use plan and the rest of the Arterial Atlas.**

The Clark County Comprehensive Plan contains many policies that guide urban form and efficient land use patterns. The most relevant goals and policies applicable to this application are as follows:

*Chapter 5 Transportation Element*

*GOAL: Develop a regionally-coordinated transportation system that supports and is consistent with the adopted land use plan.*

*GOAL: Ensure mobility throughout the transportation system.*

Finding: The proposed amendments are consistent with existing and planned the transportation system in this area which will maintain regional mobility and therefor support the comprehensive plan.

**d. The proposed change is consistent with applicable interlocal agreements; and**

Finding: There are no interlocal agreements which directly apply to this proposal.

**e. The proposed change does not conflict with the adopted Metropolitan Transportation Plan.**

Finding: The Ward Road / NE 182<sup>nd</sup> Avenue corridor is identified in the Metropolitan Transportation Plan as part of the Regional Transportation System.

**Conclusion**

All of the criteria for approval of an Arterial Plan Map amendment have been met.

## **RECOMMENDATION**

Based upon the findings presented in this report and supporting documents, staff recommends that the Planning Commission forward a recommendation to **APPROVE** this proposal.

### **Recommendation Summary**

The following table lists the applicable criteria and summarizes the findings of the staff report. The Planning Commission findings will be added to the table after public deliberation at the Planning Commission hearing scheduled for this application.

<b>COMPLIANCE WITH APPLICABLE CRITERIA</b>	<b>Criteria Met?</b>	
	<b>Staff Report</b>	<b>Planning Commission Findings</b>
<b>Criteria for Arterial Atlas Changes</b>		
<b>1. Need for Change</b>	Yes	
<b>2. Compliance with GMA</b>	Yes	
<b>3. Consistency with the adopted Comprehensive Plan</b>	Yes	
<b>4. Consistency with applicable interlocal agreements</b>	Yes	
<b>5. Consistency with adopted MTP</b>	Yes	
<b>Recommendation:</b>	<b>Approve</b>	

# Ward Rd/NE 172nd North



## Legend

### Arterial Atlas

- Principal Arterial (4 lanes w/CLT + bike)
  - Principal Arterial Parkway (4 lanes + trail)
  - Principal Arterial (2 lanes w/CLT + bike)
  - Minor Arterial (4 lanes w/CLT + bike)
  - Minor Arterial (4 lanes + bike)
  - Minor Arterial (2 lanes w/CLT + bike)
  - Collector (2 lanes + bike)
  - Collector (2 lanes w/CLT + bike)
  - Collector (2 lanes)
  - Local Access (Non arterial)
  - Neighborhood Circulator
  - Local Industrial
  - Rural Major Collector (2 lanes w/shoulders)
  - Rural Minor Collector (2 lanes w/shoulders)
  - Scenic Highway
  - State Route
  - Proposed
- ### Roads
- Alley
  - Arterial
  - DNR
  - DNR (Private Land)
  - Driveway
  - Interstate
  - Interstate Ramp
  - Primary Arterial
  - Private Roads
  - Private Roads w/o Names
  - Public Roads
  - SR Ramp
  - State Route
- ### Waterbodies
- Waterbodies
- ### Rural Centers
- Rural Centers



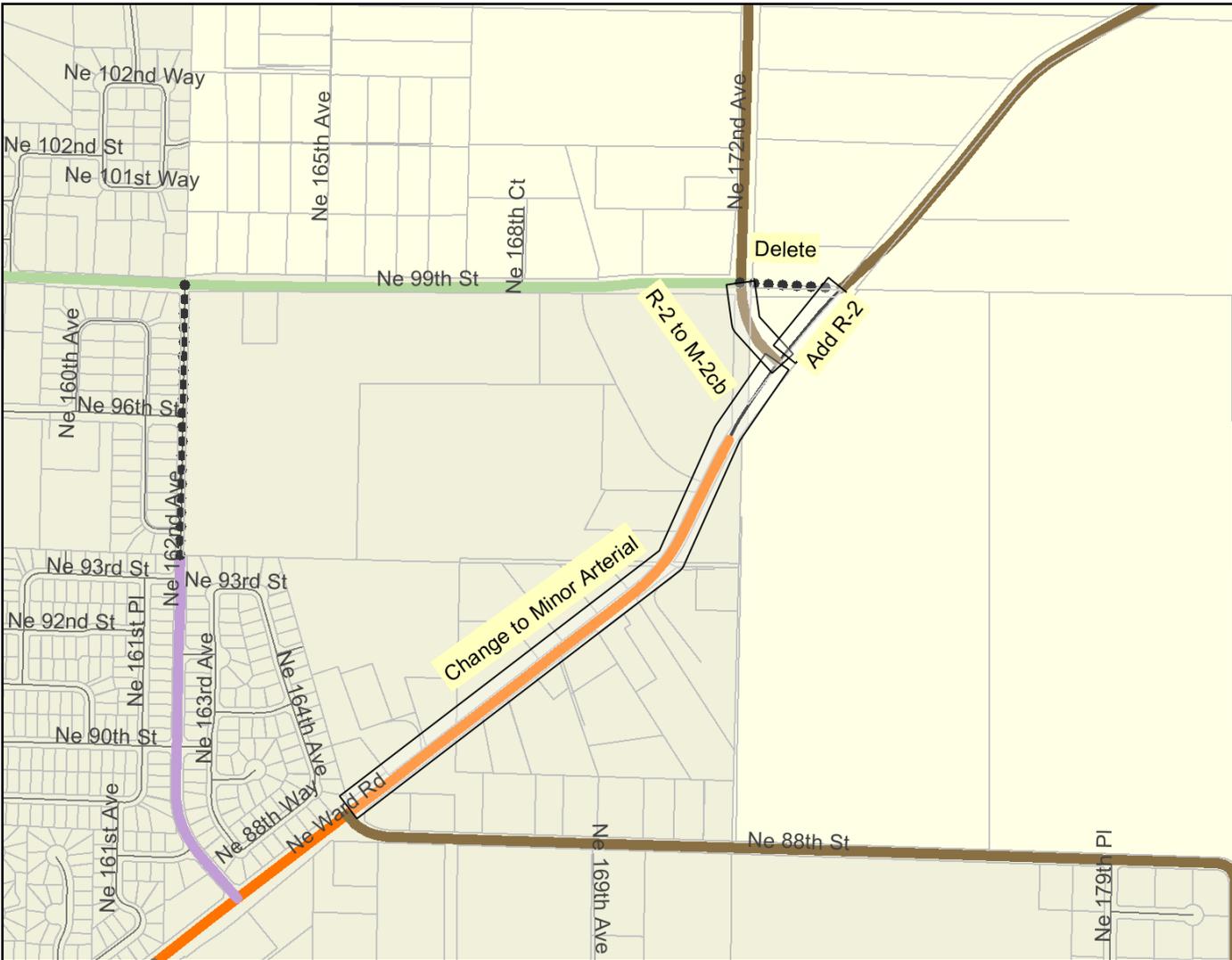
Map center: 1132074, 140902



Scale: 1:15,554

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# Ward Rd/NE 172nd Ave South



## Legend

- Parcels
- Arterial Atlas**
  - Principal Arterial (4 lanes w/CLT + bike)
  - Principal Arterial Parkway (4 lanes + trail)
  - Principal Arterial (2 lanes w/CLT + bike)
  - Minor Arterial (4 lanes w/CLT + bike)
  - Minor Arterial (4 lanes + bike)
  - Minor Arterial (2 lanes w/CLT + bike)
  - Collector (2 lanes + bike)
  - Collector (2 lanes w/CLT + bike)
  - Collector (2 lanes)
  - Local Access (Non arterial)
  - Neighborhood Circulator
  - Local Industrial
  - Rural Major Collector (2 lanes w/shoulders)
  - Rural Minor Collector (2 lanes w/shoulders)
  - Scenic Highway
  - State Route
  - Proposed
- Roads**
  - Alley
  - Arterial
  - DNR
  - DNR (Private Land)
  - Driveway
  - Interstate
  - Interstate Ramp
  - Primary Arterial
  - Private Roads
  - Private Roads w/o Names
  - Public Roads
  - SR Ramp
  - State Route
- Waterbodies**



Map center: 1129892, 136989



Scale: 1:9,678

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# Daily Traffic Counts - 2008



## Legend

- Arterial Atlas**
- Principal Arterial (4 lanes w/CLT + bike)
  - Principal Arterial Parkway (4 lanes + trail)
  - Principal Arterial (2 lanes w/CLT + bike)
  - Minor Arterial (4 lanes w/CLT + bike)
  - Minor Arterial (4 lanes + bike)
  - Minor Arterial (2 lanes w/CLT + bike)
  - Collector (2 lanes + bike)
  - Collector (2 lanes w/CLT + bike)
  - Collector (2 lanes)
  - Local Access (Non arterial)
  - Neighborhood Circulator
  - Local Industrial
  - Rural Major Collector (2 lanes w/shoulders)
  - Rural Minor Collector (2 lanes w/shoulders)
  - Scenic Highway
  - State Route
  - Proposed
- Roads**
- Alley
  - Arterial
  - DNR
  - DNR (Private Land)
  - Driveway
  - Interstate
  - Interstate Ramp
  - Primary Arterial
  - Private Roads
  - Private Roads w/o Names
  - Public Roads
  - SR Ramp
  - State Route
- Waterbodies**
- Waterbodies
  - Rural Centers

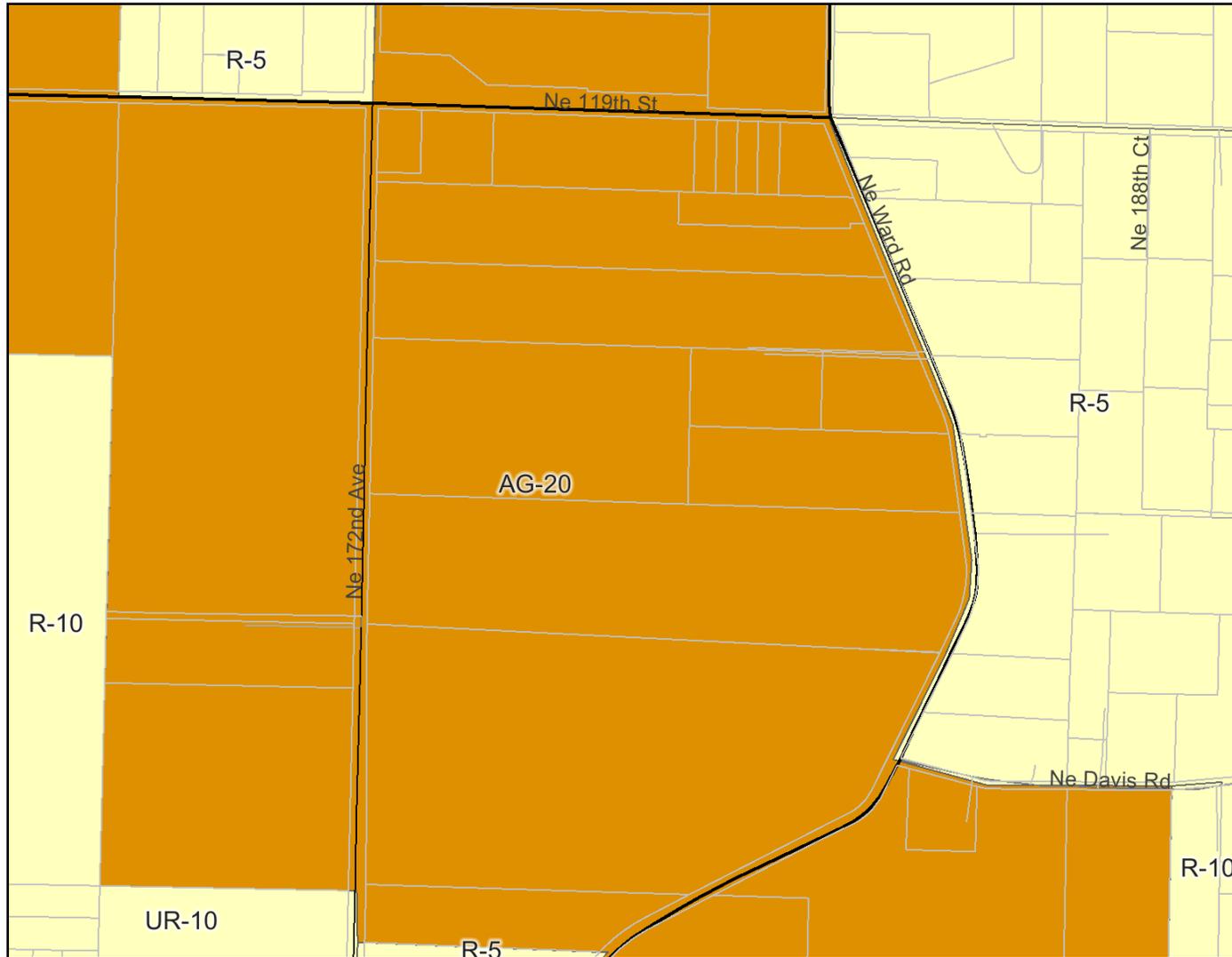
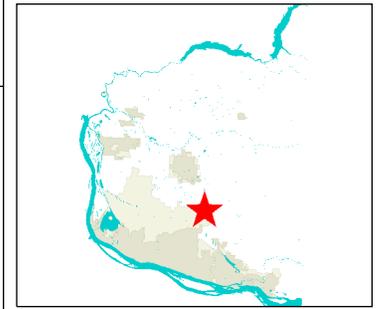


Map center: 1132223, 140602



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# Ward Rd/172nd Area North Zoning



### Legend

- Parcels
- Roads
  - Alley
  - Arterial
  - DNR
  - DNR (Private Land)
  - Driveway
  - Interstate
  - Interstate Ramp
  - Primary Arterial
  - Private Roads
  - Private Roads w/o Names
  - Public Roads
  - SR Ramp
  - State Route
- Zoning Overlays
  - Urban Holding - 10 (UH-10)
  - Urban Holding - 20 (UH-20)
  - Urban Holding - 40 (UH-40)
  - Urban Reserve - 10 (UR-10)
  - Industrial Urban Reserve - 20
  - Railroad Industrial Urban Reserve
  - Surface Mining Overlay District
  - Airport Environs Overlay
  - Existing Historic Resort
  - Columbia River Gorge Scenic Area
  - Vancouver Multiple Overlays
  - Mixed Use Overlay
  - Sewer Capacity Overlay
  - Infill Residential Development Area
  - Woodburn Hills Subarea
  - Industrial Mixed Use
  - Area 'E'
  - PID Overlay
- Zoning Designations
  - Single Family



Map center: 1131876, 141308



Scale: 1:10,438

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NE Ward Road  
Improvement Project  
Safety Review of  
Overall Project Concept

May 12, 2005

Overall Project Concept  
Safety Review

- The RSA process revealed significant safety concerns related to the overall project concept
- These findings are presented to the County for information outside of the RSA process
- The safety dis-benefits found in this project are uncommon

## Note

- Findings are the result of 2.5 days of independent safety-oriented analysis.
- It is understood that:
  - Political and community aspects of the projects are highly sensitive and complex
  - Design process was unusual
  - Lessons have already been learned
  - Significant cost and effort already expended

*Crash course in road safety*

## Traffic Safety Basic Concepts

- “Risk” is the basis of understanding and describing traffic safety
- *A specific road environment can be made less safe or more safe according to the “risk” that it presents to the road users*
- Risk is influenced by three independent factors

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## Measuring Risk

- **Crash Risk = f (E, P, C)**
- **E = Exposure**
  - How many road users are exposed to the specific risk being assessed.
- **P = Probability**
  - The likelihood of a crash occurring
- **C = Consequence**
  - The severity of a crash once it happens

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## Exposure

- **Higher Volumes = Higher Exposure**
  - Traffic Volumes
  - Pedestrian Volumes
  - Bicycle Volumes
  - Turning Volumes
  - Driveway-Related Volumes
- **STRONG relationship between CONFLICTING volumes and crashes**

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## Probability

- Quality of the design:
  - Lower quality = higher probability
- Complexity of road environment:
  - Higher complexity = higher probability
- Expectancy of upcoming conditions
  - Low expectancy = higher probability
- Intersections, turning movements, and the need to “stop and go” increase the Probability of crashes

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## Consequence

- Severity increases with:
  - Higher speeds
  - Higher speed differentials
  - Involvement of pedestrians and cyclists
  - Involvement of trucks
  - Certain collision types
    - Head-On, Roll-Over

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## Measuring Risk

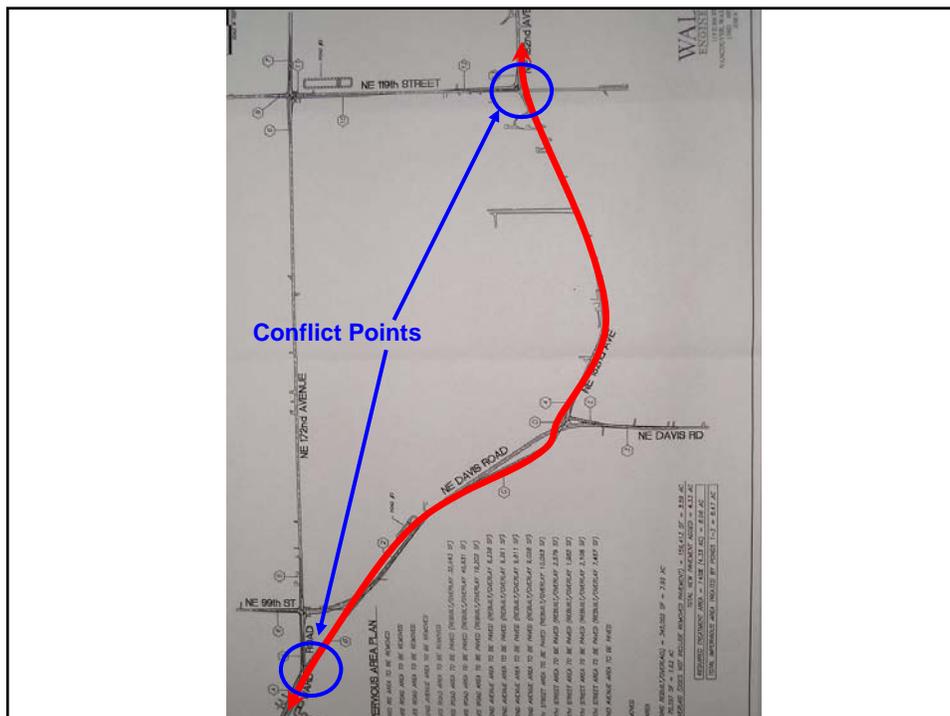
- Crash Risk = f (E, P, C)
- E = Exposure: Conflicts increase risk
- P = Probability: Design compromises increase risk
- C = Consequence: Higher speeds increase risk

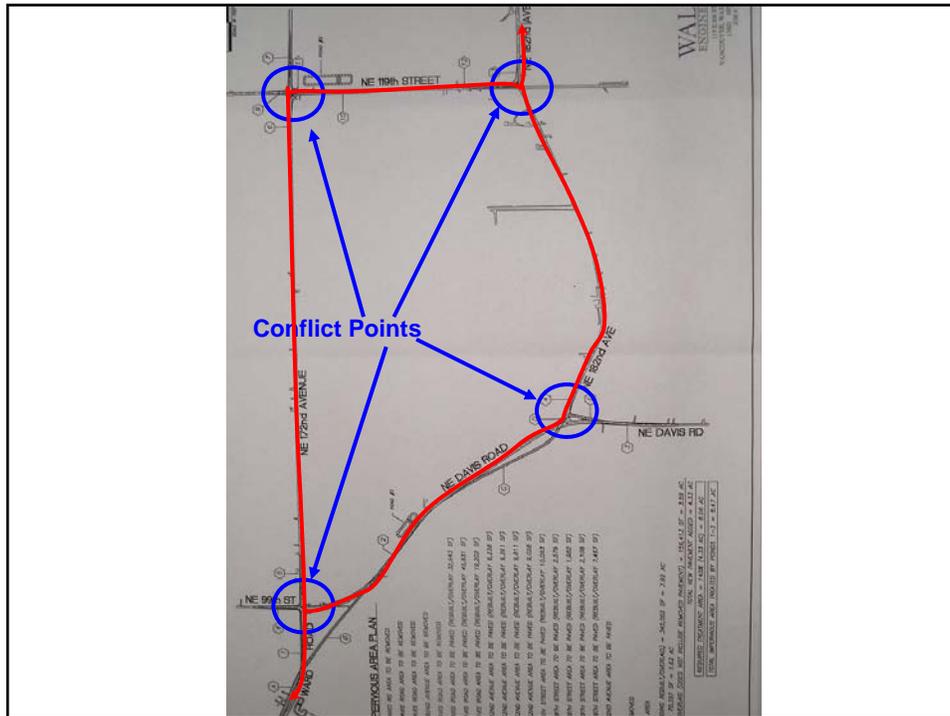
## Ward Road Improvement Project Overall Conclusion

- The proposed design will significantly increase the frequency of crashes in the study area
- The proposed design will not meet the main “Primary Criteria” of the Corridor Study
  - Relieve short and long term congestion
  - Improve safety and efficiency

# Fundamental Faults

1. Relatively free-flowing traffic is artificially channeled into conflict points
2. Non-conflicting traffic is split and channelized into several conflicting streams





## Other Issues

1. The benefits of splitting traffic onto 172 and 182 south of 119 are unclear
2. The channelized NB right-turns from 172 to 99 and to 119 appear to defeat the purpose of splitting traffic onto 172 and 182
3. The benefits of de-classifying 182 between Davis and 119 are unclear

## Other Issues

4. The improvements proposed for Ward / Davis between 172 and 182 are geometrically sub-standard (although this is where the safety issues are)
5. Increasing commuter traffic onto 172 may conflict with future recreational / local traffic activity

## Conclusion

- Building the current project as-is will likely represent throwing good money after bad.

## Unsolicited Recommendations

- Pause and re-visit objectives
- Separate the tasks of addressing (1) Current Safety Deficiencies and (2) Long Term Corridor Planning
- Conduct an overall quantitative independent evaluation of the safety and capacity implications of the design concept.
- Allow engineers to maintain control of the engineering work

2-lane Rural Major Collector

R-2

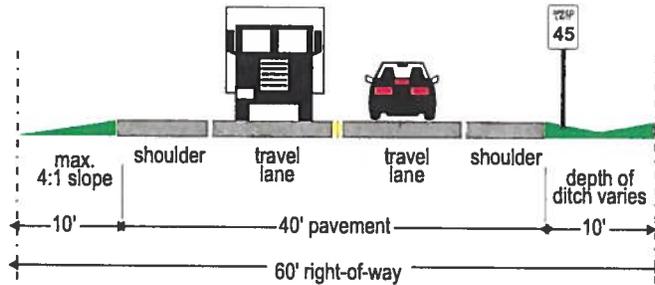


Rural major collectors are usually extensions of urban principal arterials and some urban minor arterials into the rural area. Their primary purpose is to link rural activity centers with larger towns nearby, and to connect them to state arterial routes. Mostly, they serve intra-county travel. Land access remains subordinate to traffic movement. The level of fixed route transit, bicycle, and pedestrian activity is low.

Left: NE 10th Avenue

For technical specifications, refer to Chapter 40.350.030, Clark County Code

**NOT TO SCALE**



- Street Width: 40 ft.
- Right-of-way: 60 ft.
- Design Volume: <10,000 vehicles per day
- Design Speed: 30-50 MPH
- Typical Posted Speed: 25-45 MPH
- Maximum Grade: 6 to 10 percent
- Cross Streets: Min. 500 ft. separation

## Rm-2

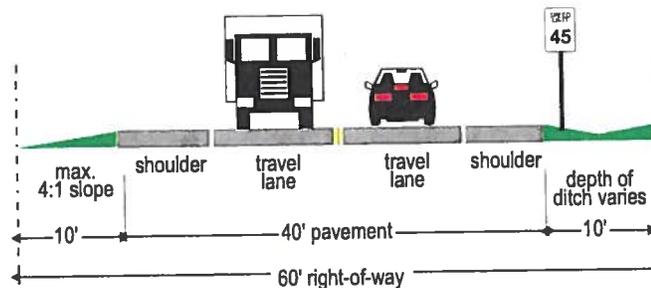
## 2-lane Rural Minor Collector

Rural minor collectors are usually extensions of urban principal arterials and some urban minor arterials into the rural area. Their primary purpose is to link rural activity centers with larger towns nearby, and to connect them to state arterial routes. Mostly, they serve intra-county travel. Land access remains subordinate to traffic movement. The level of fixed route transit, bicycle, and pedestrian activity is low.

Photo unavailable.

For technical specifications, refer to Chapter 40.350.030, Clark County Code

**NOT TO SCALE**



<b>Street Width:</b>	40 ft.
<b>Right-of-way:</b>	60 ft.
<b>Design Volume:</b>	>5,000 vehicles per day
<b>Design Speed:</b>	30-50 MPH
<b>Typical Posted Speed:</b>	25-45 MPH
<b>Maximum Grade:</b>	6 to 10 percent
<b>Cross Streets:</b>	Min. 275 ft. separation