

CHAPTER 5 - TRANSPORTATION

Part VIII of the 1996 Comprehensive Plan Update presented information on street classifications (arterial, major and minor, collector, and local streets) and design standards for those streets. Included was a breakdown of the major streets by classification. The reader is referred to that document for more information.

Table 1 in Part VIII lists planning standards for streets and highways. Consideration should be given to adjusting the street widths for planned local and major collector streets. If local streets are constructed to a width of 31 feet, back of curb to back of curb (B/B), the two-way traffic can occur safely and still allow for on street parking on one side. The two travel lanes would be 11 feet each in width and the parking lane would be 8 feet in width. If major collector streets are constructed to a width of 37 feet B/B, two-way traffic can occur safely and on-street parking can be allowed on both sides. The two travel lanes would be 11 feet each in width and the two parking lanes would be 7 feet each in width.

MAPPING

The Street Surfacing Map has been modified and enlarged to show the surface types for the streets within the City. This can be used to plan paving improvements, whether it is street reconstruction or new surfacing.

The Major Streets Plan map has also been updated. Major arterial, minor arterial, and major collector streets are identified, color-coded and numbered. These identifications will be referred to in the text discussions of arterial and collector streets. The outlines of the five sub-areas examined for future traffic flows are also shown on this map.

Three maps prepared by the Iowa Department of Transportation are included herein for reference. Each of these maps identifies annual average daily traffic (ADT) for the year. One map indicates the traffic flows in and around the town center (downtown) area. The second map indicates the traffic flows within the City of Indianola, while the third map shows the traffic counts within Warren County, outside of the City of Indianola. These numbers will be referred to within the discussions of the individual streets and sub-areas.

INSERT TRAFFIC FLOW MAP OF DOWNTOWN INDIANOLA HERE

INSERT TRAFFIC FLOW MAP OF INDIANOLA HERE

INSERT TRAFFIC FLOW MAP OF WARREN COUNTY HERE

SUB-AREA TRAFFIC PLANS AND MAPS

Traffic analyses were completed for five areas within the City. These areas are now undeveloped, but certainly have the potential for development. These sub-area traffic plans identify preferred street alignments and estimate the average daily traffic (ADT) generated by the full development of these areas. Future street planning and construction work within the City should take these development areas and their vehicular traffic impacts into account. Maps were prepared for each of the five sub-areas.

Densities of area development were thought to vary from 3.0 to 4.75 homes per acre, dependent upon the adjoining land uses, the area locations, and the type of terrain. The average daily traffic (ADT) was conservatively calculated based upon 4 trip ends per home. The street layouts and the direction of the traffic flows were prepared following input from City staff and the Planning Committee.

Area # 1

Area # 1 is located on the western edge of the City, bounded by Iowa Avenue on the south, Country Club Road on the east, Hoover Street on the north, and Y Street on the west. Planned east-west streets include extending Iowa Avenue west to Y Street, a new street connecting Y Street with Orchard Avenue, and a new street crossing the northern area, connecting Y Street to Hoover Street. Planned north-south streets include an extension of V Street north to Hoover Street and an extension of Kenwood Boulevard north to Hoover Street.

Based upon a development density of 4.0 homes per acre, the estimated percent of traffic flows in each direction and the total generated ADT is shown on the attached figure (Traffic Study for Area #1). Such development is expected to add the following ADT to the respective roadways:

- 3,050 to Iowa Avenue
- 2,040 to Y Street extended
- 9,090 to Hoover Street
- 260 to Country Club Road

INSERT AREA #1 MAP HERE

Area # 2

Area # 2 is located in the center/north part of the City, bounded by Iowa Avenue on the south, 14th Street on the east, Hillcrest Drive on the north, and Sixth Street on the west. Planned east-west streets include connections of Kentucky Avenue and Louisiana Avenue, and another roadway south of Hoover Street. Planned north-south streets include extensions of Sixth Street and Ninth Street.

Based upon a development density of 4.0 homes per acre for the residential areas and 0.5 homes per acre in the areas zoned M2, the estimated percent of traffic flows in each direction and the total generated ADT is shown on the attached figure (Traffic Study for Area #2). Such development is expected to add the following ADT to the respective roadways:

- 550 to Iowa Avenue
- 550 eastward towards US Highway 65/69
- 2,821 to Hillcrest Drive
- 275 west to 14th Street

Area # 3

Area # 3 is located on the eastern edge of the City, bounded by Iowa Highway 92 on the south, 150th Street on the east, 15th Street on the west, and Iowa Avenue on the north. Planned east-west streets include connections of East First Avenue with 150th Street, extending East Euclid Street east to 150th Street, and short extensions of East Clinton Avenue and East Boston Avenue. Two north-south streets are planned, connecting Iowa Highway 92 with Iowa Avenue, with future extensions north to Hillcrest Drive.

Based upon a development density of 4.75 homes per acre for this area, the estimated percent of traffic flows in each direction and the total generated ADT is shown on the attached figure (Traffic Study for Area #3). Such development is expected to add the following ADT to the respective roadways:

- 3,750 to Iowa Avenue
- 540 eastward towards 150th Street
- 2,890 to Iowa Highway 92
- 1,560 west to 15th Street

INSERT AREA #2 MAP HERE

INSERT AREA #3 MAP HERE

Area # 4

Area # 4 is located on the southwestern edge of the City, bounded by US Highway 65/69 on the east, 17th Avenue on the south, K Street on the west, and south of Fourth Avenue on the north. Planned east-west streets include connections from K Street to Highway 65/69. One major north-south street is planned, extending Freeman Street southward to 17th Street.

Based upon a development density of 3.0 homes per acre for this area, the estimated percent of traffic flows in each direction and the total generated ADT is shown on the attached figure (Traffic Study for Area #4). Such development is expected to add the following ADT to the respective roadways:

- 2,460 to Highway 65/69
- 300 to 17th Avenue
- 1,940 to K Street
- 640 northerly along Freeman Street

Area # 5

Area # 5 is located on the southeastern edge of the City, bounded by US Highway 65/69 on the west, 15th Street on the east, and Plainview Avenue lying east-west through the center of the area. Planned east-west streets include connections between US Highway 65/69 and 15th Street, along East 12th Avenue and East 15th Avenue. Three north-south streets are planned, connecting East 15th Avenue with Plainview Avenue.

Based upon a development density of 4.75 homes per acre for this area, the estimated percent of traffic flows in each direction and the total generated ADT is shown on the attached figure (Traffic Study for Area #5). Such development is expected to add the following ADT to the respective roadways:

- 740 to 15th Street
- 3,085 to Plainview Avenue
- 2,125 west on East 12th Avenue to US Highway 65/69
- 2,550 west on East 15th Avenue to US Highway 65/69.
- 520 north to Iowa Highway 92

INSERT AREA #4 MAP HERE

INSERT AREA #5 MAP HERE

MAJOR ARTERIALS

Three roadways have been identified as major arterial routes. One is US Highway 65/69, a two-lane highway from the south that transitions to a four-lane highway at the intersection with Iowa Highway 92. An additional lane, a two-way turn lane, is constructed from approximately East Girard Avenue to East Kentucky Avenue. Consideration has been given to the extension of the turn lane north to Hillcrest Drive.

- Map identification is purple color, number 1.
- The average daily traffic (ADT) for 2000 was 7,900 south of town, and ranged from 17,600 to 20,900 through and north of the City.
- Specific comments received during the planning discussions were 1) to continue the turn lane north to Hillcrest Drive and 2) to consider signalization at Hillcrest Drive.
- No specific priority was given to these improvements.
- Traffic flows from sub-areas 1 and 2 when developed could add 9,090 ADT (from the west) and 2,821 ADT (from the east) to the northern portion of US Highway 65/69. Such development would push the total ADT to over 30,000, dictating left and right turn lanes for the roadway.
- Traffic flows from sub-areas 4 and 5 when developed could add a total of 7,135 ADT to the southern portion of US Highway 65/69, where the current ADT is 7,900. This roadway should have left turn lanes or be a three-lane roadway with a center turn lane. A large portion of this traffic will certainly travel northward through the City and north towards Des Moines.

Iowa Highway 92 is a two-lane highway coming into town from the west. It transitions to a three-lane section from South R Street to South Jefferson Street (US Highway 65/69), then to a four-lane highway east to South 15th Street, and then back to a two-lane highway east of town.

- Map identification is purple color, number 2.
- The average daily traffic (ADT) for 2000 was 6,000 west of town, ranged from 8,800 to 14,800 within the City, and was 5,100 to 8,700 east of town.
- Specific comments received during the planning discussions were 1) to improve the highway from the City west to Interstate 35, 2) to realign J and K streets as they intersect with the highway, and 3) to consider signalization at intersections with J Street and County Road R63.

- Traffic flows from a developed sub-area 3 is expected to increase the ADT on the eastern portion of Iowa Highway 92 by 2,890, and from sub-area 5 by 520. The ADT for the eastern portions of Iowa Highway 92 would total from 8,510 to 12,110. For roadways with ADT over 10,900, left turn lanes or the use of a three-lane surface with center turn lanes is desired.
- Traffic flows from a developed sub-area 4 is expected to increase the ADT on the western portions of Iowa Highway 92 by approximately 2,000, to totals upwards of 16,800. This traffic volume is within the design criteria for four-lane undivided roadways. Certainly if Iowa Highway 92 is upgraded or enlarged, the use patterns within the City will change, with expected usage to increase.

County Road R63 is a two-lane paved highway. The section north of Iowa Highway 92 was paved since the last comprehensive plan update. County Road R63 is in good condition at this time, but as development occurs, it may need to be upgraded with turn lanes and/or signalization.

- Map identification is purple color, number 3.
- The average daily traffic (ADT) for 2000 was 1,940 as traffic passed along the western areas of the City.
- A comment made noted the need for a signalized intersection at Iowa Highway 92.
- Traffic flows from a developed sub-area 1 would generate at least 2,040 vehicles westerly to Y Street, and many of those vehicles would continue westerly to County Road R63. The existing two-lane roadway can handle the expected traffic load.

MINOR ARTERIALS

The minor arterial street network within the City consists of the following nine streets: Hoover Street, Kenwood Boulevard, East Hillcrest Drive, 150th Avenue, Plainview Avenue, West 17th Avenue, 15th Street, 140th Avenue, and Y Street.

Hoover Street is an existing gravel road that extends from County Road R63 east to Country Club Road. The land between Country Club Road and US Highway 65/69 is undeveloped farmland.

- Map identification is blue color, number 1.

- Specific comments made during planning discussions are 1) this roadway needs to be paved and 2) to obtain the appropriate width of right-of-way, align straight between County Club Road and US Highway 65/69, and to use an urban design with restricted access.
- The construction of this street was given the second highest priority in terms of future development (after improvements to Kenwood Boulevard). The extent and type of development along the roadway is subject to further discussions. However, growth is occurring and is expected to continue within the northwestern area of the City. The main two routes, Orchard Avenue and Iowa Avenue, were not designed to carry the anticipated traffic loads. A direct route to US Highway 65/69, around the residential areas in the northwest portions of the City, is needed.
- If sub-area 1 develops as expected, the ADT to Hoover Street would be at least 9,090. The majority of this traffic will travel easterly to US Highway 65/69.
- Based upon expected ADT, this roadway should be designed as a two-lane undivided roadway with left turn lanes, a three-lane two-way unbalanced roadway, or a three-lane with center turn lane roadway.

Kenwood Boulevard is currently paved from Iowa Highway 92 to two blocks north of West Euclid Avenue. The remainder of the alignment is on hilly, undeveloped land. Kenwood Boulevard is considered to be a high priority corridor, with a northern extension to Iowa Avenue being the first step. Then continuing the paved street construction north to Hoover Street as development occurs.

- Map identification is blue color, number 2.
- Specific comments received during the planning discussions were 1) to extend the Boulevard to Hoover Street and 2) to pave Kenwood to Iowa Avenue first, and then encourage extensions northward to Hoover Street by private developers.
- The construction of this street was given the highest priority in terms of future development. The extent and type of development along the roadway is expected to be residential. Growth is occurring and is expected to continue within the western and northwestern area of the City. A direct route north to Hoover Street, then the option to travel west to County Road R63 or easterly to US Highway 65/69 is needed. This extension will also relieve traffic on Country Club Road, until improvements to that street can be made.

- With a developed sub-area 1 and an outlet for Kenwood Boulevard at Hoover Street, the ADT is expected to range from 960 to 6,375.

East Hillcrest Drive is an existing two-lane highway, serving the City from US Highway 65/69 easterly to North 14th Street (with an ADT of 2,220) and to North 15th Street (with an ADT of 1,220).

- Map identification is blue color, number 3.
- Specific comments received during the planning discussions were 1) Improve intersections at US Highway 65/69, North 14th Street, and 150th Avenue and 2) to reconstruct the roadway from US Highway 65/69 east to North 14th Street, and continue easterly to 150th Avenue as development warrants.
- This street is a main route to the eastern areas of the City, and as growth to the east occurs, and travel to the north to Des Moines continues, residents will continue to use Hillcrest Drive to avoid traffic congestion within the City proper.
- Development of sub-area 2 may add 2,821 ADT to East Hillcrest Drive. Development within sub-area 3 is expected to have 3,570 ADT traveling to the north, and it is assumed that a large portion of that traffic will continue northerly towards Hillcrest Drive.

150th Avenue, from East Hillcrest Drive south to Plainview Avenue, is the major north-south roadway at the eastern edge of the City.

- Map identification is blue color, number 4.
- Specific comments received during the planning discussions were to pave the roadway prior to annexation and to construct the roadway with concrete pavement, 35 feet B/B, with a county rural design.
- ADT in the year 1996 north of Iowa Highway 92 was 270. Development within sub-area is expected to generate an additional 400 ADT.

Plainview Avenue (Kennedy Street) from US Highway 65/69 easterly to 150th Avenue is a gravel roadway in the southeastern portion of the City.

- Map identification is blue color, number 5.
- Specific comments received during the planning discussions were to pave the roadway within the City limits and to construct the roadway with concrete pavement, 35 feet B/B.

- This roadway provides access to the school complex at the corner of Plainview Avenue and South 15th Street from the south, from any new development in the southeastern areas, and to existing utilities along Plainview Avenue.
- The expected additional ADT for Plainview Avenue with the development of sub-area 5 is 3,085.

West 17th Avenue from US Highway 65/69 west to K Street is a two-lane gravel roadway, serving the southwestern portion of the City.

- Map identification is blue color, number 6.
- Specific comments received during the planning discussions were 1) to pave West 17th Avenue from US Highway 65/69 west to K Street, and 2) to obtain right-of-way westerly to County Road R63 as development occurred.

South 15th Street from Iowa Highway 92 south to Plainview Avenue is concrete pavement for the first 1,000 feet. Then the surface transitions to oil & chip as the roadway nears Plainview Avenue.

- Map identification is blue color, number 7.
- Specific comments received during the planning discussions were to provide an urban extension as development east of South 15th Street occurs.
- This street is a main route southerly to and from the schools and athletic complex. The ADT in 2000 was 970.
- Development of sub-area 5 and the paving of Plainview Avenue will increase the ADT to South 15th Street. A portion of the 3,085 ADT expected for Plainview Avenue will also travel on South 15th Street. A portion of the 740 ADT traveling easterly from sub-area 5 is also expected to continue northerly on South 15th Street.

140th Avenue from Plainview Avenue south to Brown's Chapel is an existing gravel roadway.

- Map identification is blue color, number 8.
- Specific comments received during the planning discussions were to pave this roadway as development occurred. The ADT in 2000 was 350. Full development of sub-area 5 is expected to add 740 ADT to this roadway.

Y Street from West 17th Avenue north to Hoover Street is now partially a gravel roadway and partially undeveloped.

- Map identification is blue color, number 9.
- Specific comments received during the planning discussions were 1) to obtain right-of-way as land develops, 2) to pave the existing gravel road surface north of Iowa Highway 92 as the land in agricultural production develops or in conjunction with a county paving project, and 3) use an urban design section with concrete pavement.
- The ADT in 1996 was only 50. Development of sub-area 1 will add 2,040 to Y Street.

MAJOR COLLECTORS

Orchard Avenue extension westerly to County Road R63 is a new planned roadway. A portion of Orchard Avenue is currently paved, from one block west of Country Club Road east to US Highway 65/69. The remainder of the proposed alignment is on undeveloped land.

- Map identification is yellow color, number 1.
- The average daily traffic (ADT) for 2000 on Orchard Avenue east of County Club Road is 1,350. Development of sub-area 1 is expected to increase the ADT by 130 in an easterly direction and 1,020 in a westerly direction.
- Specific comments received during the planning discussions were 1) to obtain right-of-way as land in agricultural production develops, 2) encourage development of land for an Orchard Avenue / Kenwood Boulevard connection, and 3) construct the roadway 31 feet wide.

West Euclid Avenue, extended westerly from Kenwood Boulevard to County Road R63 is constructed to Y Street. The surface is concrete pavement for approximately 2 blocks and then is a gravel roadway. The remainder of the proposed alignment is on undeveloped land.

- Map identification is yellow color, number 2.
- Specific comments received during the planning discussions were to pave West Euclid Avenue east of Y Street as the agricultural land develops. The remaining portion can be constructed possibly in conjunction with a county project. The new roadway should be at least 31 feet in width.

South K Street from Iowa Highway 92 south to West 17th Avenue is a gravel surface roadway. The amount of traffic along South K Street is increasing.

- Map identification is yellow color, number 3.
- The average daily traffic (ADT) for 2000 is 580. Development of sub-area 4 is expected to increase the ADT to 2,520.
- Specific comments received during the planning discussions were to pave south of Iowa Highway 92 as the land develops. Paving could be done in conjunction with a county paving project. The street should be at least 31 feet in width.

Country Club Road from West Iowa Avenue north to Hoover Street is an existing paved roadway from West Iowa Avenue to Scenic Valley Drive and a gravel surfaced roadway north to Hoover Street.

- Map identification is yellow color, number 4.
- The average daily traffic (ADT) for 2000 was 2,150.
- Specific comments received during the planning discussions were to widen the existing 25-foot roadway prior to the Hoover Avenue extension to US Highway 65/69. Then continue the street paving to Hoover Avenue. as land develops.
- This project was given the third highest priority, after the Kenwood Boulevard extension north to Hoover Street, and the Hoover Street extension east to US Highway 65/69. This project will allow existing traffic to flow to and from the northwest portions of the City, without increasing the traffic loads to the central business areas. If this project is completed after the Kenwood Boulevard extension, the traffic loading to Country Club Road will not increase so dramatically.

Iowa Avenue from approximately Kenwood Boulevard on the west to 150th Avenue on the east is a major east-west route through the community.

- Map identification is yellow color, number 5.
- The average daily traffic (ADT) for 2000 for Iowa Avenue west of US Highway 65/69 ranges from 730 to 4,070. The average daily traffic (ADT) for 2000 for Iowa Avenue east of US Highway 65/69 ranges from 4,470 to 4,940.
- Specific comments received during the planning discussions were 1) make spot repairs as needed along existing Iowa Avenue, 2) pave Iowa Avenue westerly to Kenwood Boulevard in 2003, and 3) pave Iowa Avenue from 15th Street east to the corporate limits in conjunction with a county paving project; 31 feet in width.

- As development occurs in sub-area 2, the traffic flow to Iowa Avenue is expected to increase by 550. Additional traffic from the development in sub-area 3 may be 3,570 ADT. This traffic will use Iowa Avenue until roadways are constructed northerly to Hillcrest Drive.

Inwood Street from County Road R63 east to Kenwood Boulevard is an alignment partially on undeveloped land and partially a gravel surfaced roadway.

- Map identification is yellow color, number 6.
- Specific comments received during the planning discussions were to provide right-of-way for the connection and to pave the street as the land develops. This project could be given a higher priority if the work on West Iowa Avenue is performed and there is a need for an outlet route to County Road R63.
- This roadway would have significant use if sub-area 1 developed. An estimated 2,040 ADT will use the roadway.

J & K STREET INTERSECTION ANALYSIS

The offset intersection of J and K Streets with Iowa Highway 92 was studied to consider possible traffic issues. J and K Streets are about 250 feet apart. Traffic between the two must turn right onto Iowa 92 and then left onto the side street. Traffic volumes on J and K Streets will increase as the area to the south develops, increasing the potential for capacity and accident problems.

This intersection should be modified to bring the J Street approach west to align with K Street. This will have the effect of eliminating double turns for through traffic and will make it easier to provide future traffic signals. Right-of-way will be required for the modification and should be acquired as soon as it becomes available. This would permit the design and construction of improvements to follow as soon as the budget process allows. At present K Street is unpaved. The intersection modifications should be completed no later than when K Street is paved.

INSERT TRUCK ROUTES PLAN HERE

TRUCK ROUTES

In January of 1996, a Truck Route Study was prepared for the City of Indianola. Due to the residential nature of the majority of the routes identified in that study, City staff directed Stanley Consultants, Inc. to review and modify the route recommendations. The revised plan is shown on the Truck Routes Plan.

The Truck Route System was broken into 2 phases. Phase I consists of existing paved roadways that should be included immediately into the truck route system. Phase II consists of unpaved or planned roadways that should be included as the City expands and these streets are developed. The following recommendations are based solely on providing for through truck movements. Local deliveries to individual truck generators were not addressed unless specifically requested by the City.

Phase I Truck Route System

Phase I Truck Routes are highlighted in green on the Truck Routes Plan. Truck Route (R14-1) signs should be installed to mark the truck routes. Pavements of unknown thickness should be cored to determine structural adequacy.

Improvements to the existing roadways that need to be addressed for the Phase I Truck Route System are:

- Improve the intersection of US Highway 65/69 and Iowa Highway 92 to allow trucks to turn without lane or curb encroachments.
- Improve the southwest quadrant of the intersection of 14th Street with Hillcrest Drive to limit encroachment into the adjacent lane.
- Consider restricting the on street parking or widening Euclid Avenue from one block west of US Highway 65/69 to Buxton Street.
- The southeast quadrant of the Buxton Street/Euclid Avenue intersection may need to be rebuilt to permit turning truck movements, depending on the acceptable level of encroachment.
- Consider restricting or removing the on street parking on Buxton Street along the truck route.
- Depending on the truck traffic anticipated, widen Clinton Avenue from Third Street to Fifth Street or restrict the on street parking in this area.

- The southwest quadrant of the Clinton Avenue/Fifth Street intersection may need to be rebuilt to permit turning truck movements, depending on the acceptable level of encroachment.

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Phase II Truck Route System

Phase II Truck Routes are highlighted in orange on the Truck Routes Plan. When improved or constructed, the design of the streets and intersections within the Phase II System shall accommodate truck traffic. The number of houses fronting onto these streets should be low or not allowed.

End of Chapter 5.