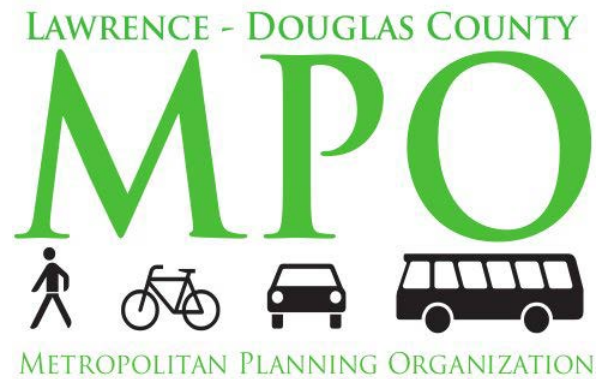


8/16/2013



LAWRENCE  
DOUGLAS  
COUNTY

## MULTIMODAL STUDY FIELD OBSERVATION



Eudora & Baldwin City, Kansas Primary and Middle Schools

# Eudora Elementary School

## Field Observation Notes

Date: 7 May 2013

School: Eudora Elementary School

Weather: AM: 45 degrees with dense fog; PM: 72 degrees and sunny

Arrived and began observation: 6:25AM, 3:00PM

### Policy and procedure for student arrivals

Eudora Elementary allows children to arrive at school through three building entrances. Two entrances in the front of the building are for car-rider drop offs. These entrances are approached from N 1400 Road, which is a two-lane road with ditches on each side and no sidewalks. The entrance at the rear of the building is used by bus riders, walkers, bicyclists, and parents walking their children into school from their cars in the parking lot.



Figure 1. Eudora Elementary School's south entrance accommodates walkers, bicyclists, bus riders, and students dropped off by car and walked inside by parents.

Shortly after taking up post near the front of the school, Jan, the school principal, came out to greet me and informed me of the school district's policies regarding which entries can be used by which type of traffic and how walking or biking is handled. The school district and the Eudora Police Department agreed on policy to discourage children from riding their bikes to

school based upon equity of access for all students and safety concerns. Also for safety reasons, children are not allowed to walk to the front door nor to the school from the front of the school property, though a sidewalk was constructed to the front door from the front of the property.

Despite the biking policy, bike racks are provided at the south end of the building between the playground and the south entrance.

## **Development around the school**

Housing development around the school encircles the east, south and west sides, primarily. Aside from a few houses along N 1400 Road across from the school, the remainder of property to the north is currently agricultural. Western neighborhoods appear to be the oldest, and eastern and southern ones appear to be the newest. This is reflected in the type of infrastructure installed within the neighborhoods. Older streets are narrow, road-type with open ditches and no sidewalks on either side. Newer streets are constructed wider with curbs and gutters and a walk on one side of the street.



Figure 2. Neighborhoods to the west of Eudora Elementary School are primarily characterized as roads with no curbs, gutters or sidewalks. There are roads with sidewalks present to the west, but sidewalk connectivity toward the Elementary School is quite limited.

Fewer homes are constructed to the east of the school than to the south and west. Fewer homes are constructed to the north than the east.





Figure 3. Peach Street, to the east of Eudora Elementary School includes a fully connected sidewalk along one side of the street, and is well-signed to inform drivers of the nearby school and pedestrian crossings.

## Access

Pedestrian connections from the south and east sides of the school are relatively flat grade compared to the grade between the school and the neighborhood to the west. At the west edge of school property, the terrain drops and forms a high bank of a south to north running stream.



Figure 4. South pedestrian walk from the neighborhood to the school.

There is currently no pedestrian connection to the west, but pedestrian traffic does pass north of the ballfields, drops down the slope and jumps the creek, as is evidenced by the worn grass path across from Lane C.





Figure 5. Travel path from the neighborhood just west of the school showing the path across the creek and up slope to the school property.

A culverted driveway across the stream approximately one block south provides better access across the stream, but does not appear to be used as frequently as the straight jump across the water near Lane C. The primary purpose of the driveway is unapparent, as it doesn't appear to connect to a home, though it is contained within the private ownership of the Grandview Trailer Park neighborhood.





Figure 6. Newer culverted drive across the creek on the west side of the school property.

Concrete sidewalks form the south and east connections and tie into neighborhood sidewalks with well-signed crosswalks. The sidewalk from the front entry of the school to N 1400 Road connects only to the roadway, as no other sidewalks are present on the north.



Figure 7. Sidewalk to the front door of the school dead-ends at N 1400 Road where there are no other sidewalks to tie into.

## Morning Observation

AM arrival occurred between 7:00 and 8:15.

Observation Point #1. In the first portion of the morning, observation took place near the northwest corner of the building, where no walkers or bike riders were noted.

Observation Point #2. At 7:23, observation began south of the building, near the bicycle racks. Right away, 6 walkers were observed approaching the school. In total, 62 walkers and one biker were observed arriving at the school. 48 arrived from the south, 14 from the east, 0 from the west, 0 from the north.

Many parents also drove their children to school and parked in the parking lot and walked their children to the south entrance.



Figure 8. Observation points and campus layout at the elementary school.



## Afternoon Observation

PM departure occurred between 3:15 and 3:32.

Observation Point for departure was the same location as Observation Point #2 in the AM. The vast number of children departing from the south entrance was overwhelming. Walkers, bus riders and parents parking and walking to the door to pick up their children, as well as children who headed to the playground when school let out, complicated the tally process. That process was further complicated when busses arrived with students from other schools that disembarked and walked home from here. As a result the counts were much higher than the morning counts, with totals reaching 170 walkers and 1 biker. 18 students walked home to the east, 9 students walked home to the southeast (across a field), 137 to the south, and 6 to the west (across a field north of the ball fields).

## Travel Patterns

**East:** The east access point follows alongside a gated school access driveway that begins as 11th Street at the intersection of Peach Street. The east access walk at Peach Street begins on the north side of 11th, continues onto school property along the driveway, then makes a crossing to the south side of the drive and follows the south side until reaching a portion of drive that forces the walkers south again then east and then connects with the walk that runs south to north from the playground to the south building entry (Figure 9). Since most people prefer to take the most direct path, most students deviated from the sidewalk once it took the



first jog to the south side of the street. At this point, they either continued in the grass or walked in the driveway, then crossed a patch of grass up a slope near the building entrance.



Figure 9. East access to Eudora Elementary's south entrance.

**South:** Most students walking to and from the neighborhoods on the south were observed using the provided walk for most of the distance, then shortcutting through the playground. A few students opted to ignore the provided walk and cut across the southeast field and one of the home's side yards (Figure 10).

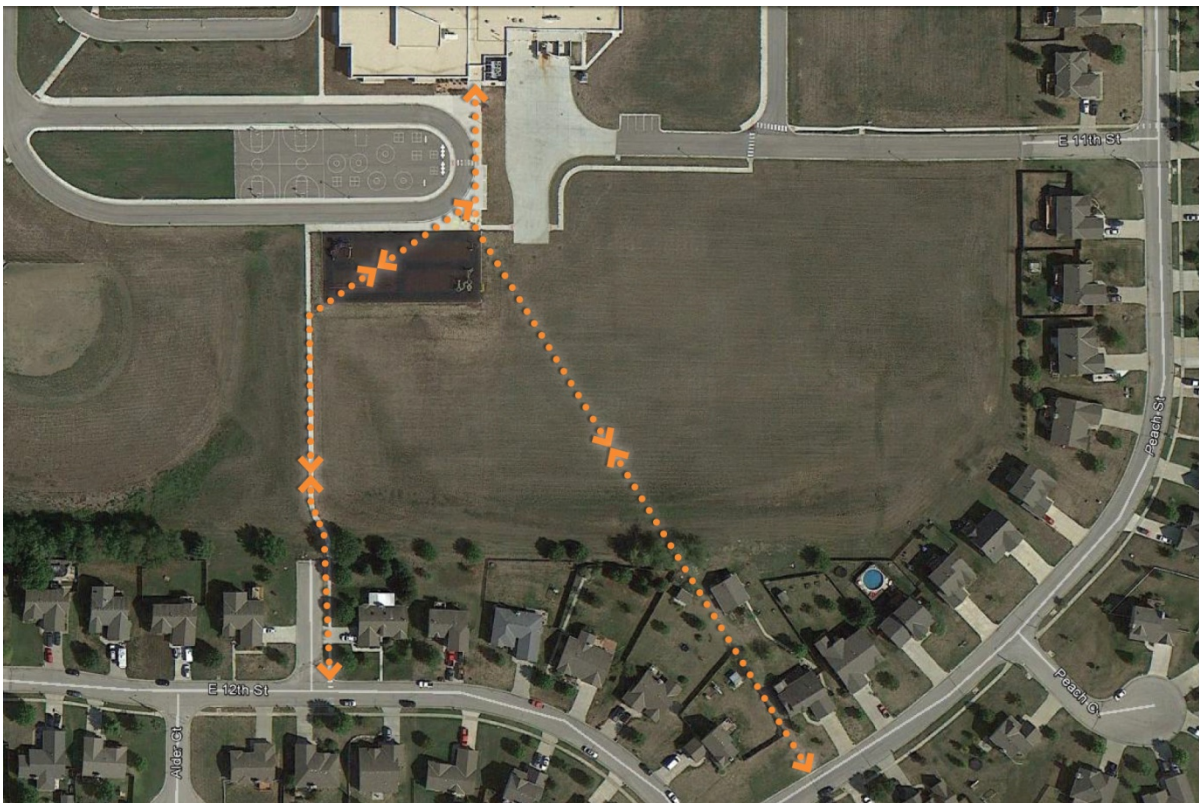


Figure 10. South path and sidewalk to Eudora Elementary's south entrance.





**West:** Students observed travelling by foot from the south entrance to the west travelled along the school walk and then across the driveway, across the northernmost ball field then down the steep slope and across the creek. (Figure 11)



Figure 11. West travel pattern to Eudora Elementary's south entrance.

**North:** No children were observed travelling to or from the school by foot to the north. Northern travel is discouraged, however, due to the location of the walk/bike entrance on the south end of the building, and observation occurring near the south entrance, if any children did actually walk to or from the north, they would not have been seen.



Figure 12. North sidewalk to Eudora Elementary's front entrance.





# Eudora Middle School

## Field Observation Notes

Date: 7 May 2013

School: Eudora Middle School

Weather: AM: 45 degrees with dense fog;

PM: 72 degrees and sunny

Arrived and began observation: 7:00AM, 3:00PM

### Policy and procedure for student arrivals

Eudora Middle School allows students to arrive at school through the south building entrance; all other doors are locked. Students gather outside of the main building entrance until the doors are unlocked. One staff member is present to supervise all arrivals.



Figure 13. Eudora Middle School's south entrance accommodates walkers, bicyclists, bus riders, and students dropped off by car.



Figure 14. Half "H" style bike racks are provided on the east side of the school, next to the staff parking lot.



## Development around the school

Newer housing development borders the Middle School property to the south and west, while Eudora High School is located directly to the north. The neighboring residential areas have wide streets with curbs and gutters and a walk on at least one side of the street.



Figure 15. Typical sidewalk in Shadow Ridge subdivision.

East of the High School, across E 2200 Road, is a newer housing development. The remaining property around the school is currently agricultural, but new housing construction is slowly expanding to the southwest.



Figure 16. East 2200 Rd is a two lane road with no sidewalks and ditches on each side and is the only road connecting the Middle School to surrounding development.

## Access

Pedestrian connections from the south, west, and north are at a relatively flat grade. A concrete sidewalk to the south and a concrete sidewalk to the east tie into neighborhood sidewalks. The surrounding neighborhoods have newer sidewalks with ramps, but minimal signage and few painted crosswalks that make crossing connecting streets challenging.





Figure 17. The southern pedestrian connection from Shadow Ridge Drive to Eudora Middle School ends at the staff parking lot. Students walk through the parking lot to reach the front doors.



Figure 18. The western pedestrian connection from Elm Street to Eudora Middle School ends at the school property line. Students walk through a grassy field to reach the building entrance.

A concrete walk from Eudora Middle School to Eudora High School ties into a signed and painted crosswalk located at the intersection of E 2200 Road and 23<sup>rd</sup> Street. This crosswalk provides the only safe connection to the east. A school crossing guard is stationed here during morning arrival and afternoon pick-up.



Figure 19. Crosswalk at E 2200 Road and 23<sup>rd</sup> Street.

## Morning Observation

AM arrival occurred between 7:15AM and 8:15AM.

Observation occurred at the southwest corner of the parking lot. In total, 24 walkers and 3 bicyclists were observed arriving at the school. 13 arrived from the south, 12 from the west, and 2 from the north.

3 buses dropped off students in the bus unloading zone, but the majority of students (approximately 160) were dropped off by car at the designated drop-off location on the far west side of the parking lot. In addition, a small group of 20 elementary school students were dropped off by car at the Middle School and shuttled by bus to Eudora Elementary School.



Figure 20. Buses pick-up and drop-off students on the south side of Eudora Middle School.

## Afternoon Observation

PM departure occurred between 3:10PM and 3:35PM.

Observation occurred at the southwest corner of the parking lot. Bus riders were released from the main building entrance 5 minutes earlier than car-riders, walkers, and bicyclists. 4 buses were parked in the bus-loading zone, and over 120 students loaded onto the buses. After the buses loaded and departed, the remaining students were released. Approximately 40 students were picked up by car. In total, 37 walkers and 3 bicyclists were observed departing school. 12 departed to the south, 10 to the west, and 15 to the north.



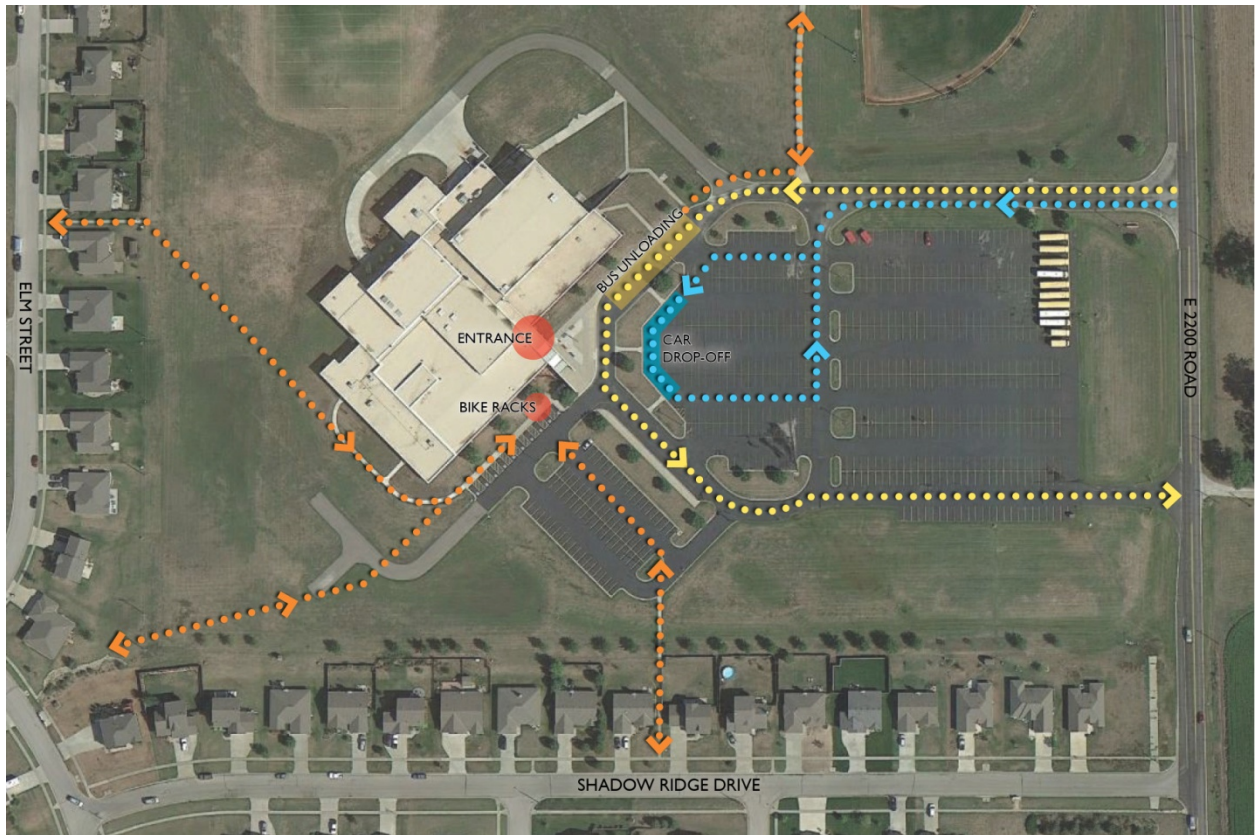


Figure 21. Observed pedestrian, car, and bus access to Eudora Middle School.

## Travel Patterns

**South:** Students walking to and from the neighborhood to the south were observed using the provided concrete walk connecting Shadow Ridge Drive to the staff parking lot. Because this is not a continuous sidewalk to the building entrance, students must walk through the staff parking lot. Fortunately, most of the staff is parked before walkers arrive.



Figure 22. A Middle School student taking the Saddle Ridge Drive cut-through.



**West:** A concrete sidewalk from Elm Street ends at the school property boundary, forcing students to travel through a grassy field. Since no clear walk to and from the neighborhood is delineated, students were observed crossing to the west and southwest through grassy open space and private backyards.

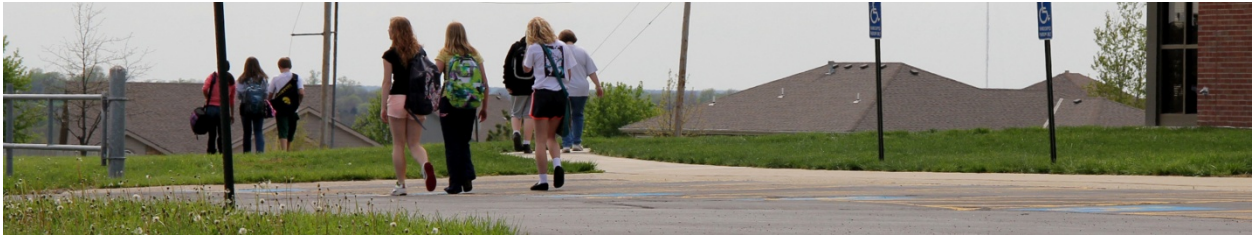


Figure 23. Middle school students walking home to the west.

**North:** Students walking to and from the north were observed using the provided concrete sidewalk connecting Eudora High School and Eudora Middle School.



Figure 24. Students walking on the sidewalk between the Middle School and High School.

## Potential Connectivity for Eudora's Future

Eudora's more established neighborhoods were built on an gridded road network that offers superior multi-modal connectivity throughout the community compared to suburban-type cul-de-sac road systems. This is a boon for the City when looking for ways to increase connectivity for pedestrians because most of the older neighborhoods lack sidewalks or the existing sidewalks do not connect to an overall network. ADA requirements are currently not being met with many of the older sidewalks in Eudora. Revitalizing these gridded road networks to

include interconnected, ADA appropriate, pedestrian sidewalks and trails is the simplest, best solution to making Eudora more walkable and bicycle friendly.

It is recommended that a trail within the East 10th Street/North 1400 Road right-of-way be added to tie the elementary school safely to the neighborhoods to the west and north, and to facilitate walking/bicycling from neighborhoods into the commercial districts.

Also, a north-south trail spine should be considered along Church Street from East 10th Street to the Middle School south of K-10. There is an existing sidewalk that runs along the east side of Church Street from East 10th Street to the commercial district near K-10 Highway with some minor discontinuity at both ends. This would serve well as a trail with some widening. South of K-10 Highway, the trail would serve the schools well to run along the west side of Church Street.

North-South connectivity should be extended to the downtown business district along Main Street. In addition to boosting business, this opens up the main trail lines to connectivity to future County trails on all four sides of the community.

Future housing and commercial development and all road rehabilitation projects should strive to connect and update pedestrian and bicycle amenities and connect them with the greater system as they come online.



Figure 25. Established road rights-of-way offer potential for better connectivity by simply adding interconnected sidewalks.



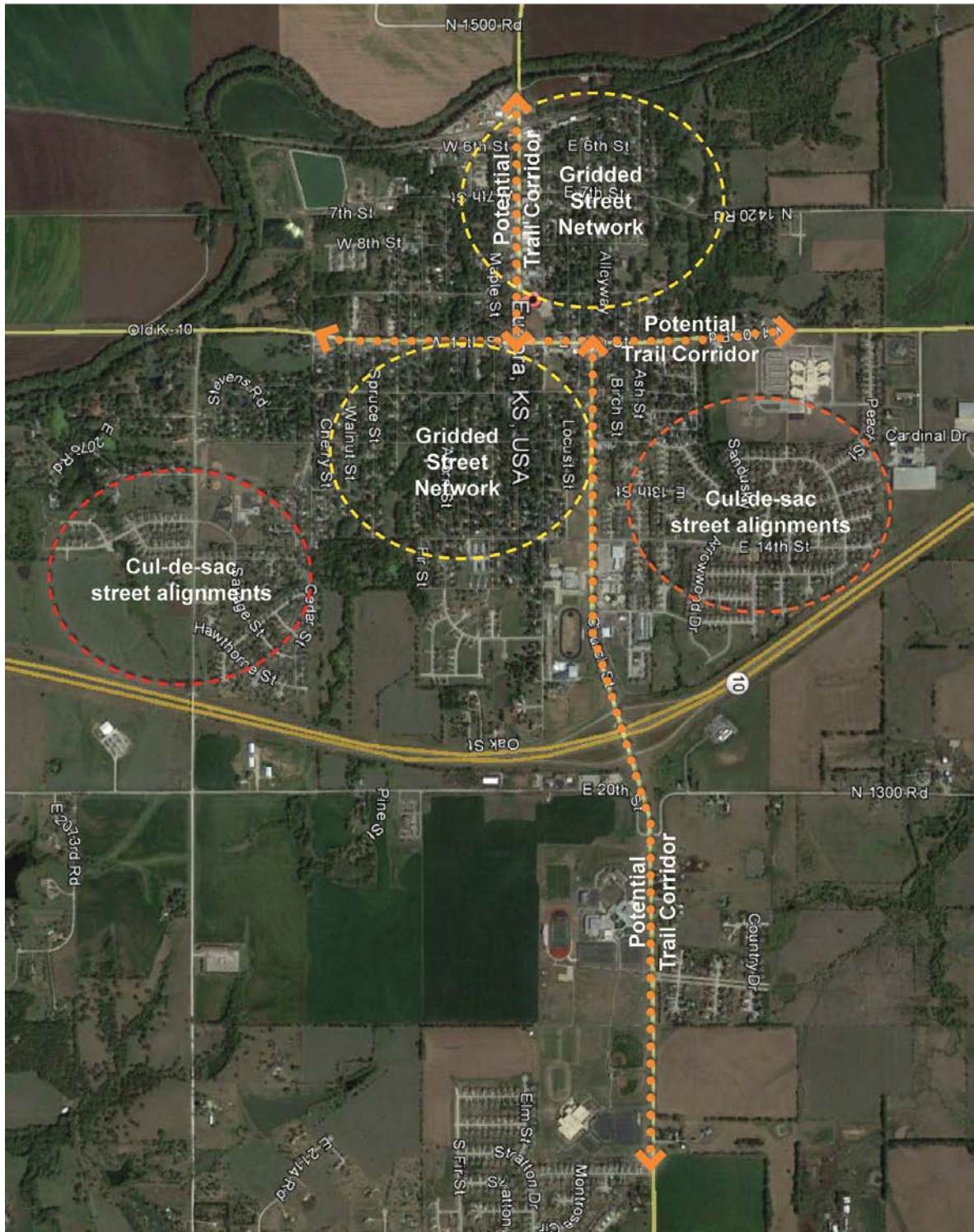


Figure 26. Gridded street areas vs. cul-de-sac street areas of Eudora and the proposed trail corridors to tie the north, south east and west ends of the community together, opening up access to downtown.

# Baldwin City Elementary School - Primary

## Field Observation Notes

Date: 8 May 2013

School: Baldwin Elementary School – Primary Center

Weather: AM 57 degrees with overcast skies – between rain showers;

PM: 72 degrees and sunny

Arrived and began observation: 7:15AM, 3:00PM

## Policy and procedure for student arrivals

Baldwin City Primary Center allows students to arrive at school through two building entrances. The main entrance at the front of the building is for car-rider drop-offs, walkers, and bicyclists. The entrance on the east side of the building is used by bus riders. One staff member is present to supervise all arrivals.



Figure 27. Baldwin Primary Center's west entrance accommodates walkers, bicyclists and students dropped off by car.



Figure 28. Baldwin Primary Center's east entrance accommodates bus riders.





Figure 29. A comb style bike rack is provided north of Baldwin Primary Center, adjacent to the car entrance and exit.

### **Development around the school**

Baldwin City Primary Center is located on the western edge of the City. Neighborhoods with aging infrastructure border the Primary Center to the south and east. Streets are narrow with no curbs, gutters and decaying sidewalks. The remaining property around the school is currently agricultural.



Figure 30. Typical sidewalk condition in the neighborhood south of Baldwin City Primary Center.



## Access

The location of the Primary Center poses a problem for students walking or bicycling. The only pedestrian connection to surrounding neighborhoods is a sidewalk along Elm Street which connects to a concrete sidewalk northeast of the Primary Center. This trail routes walkers and bicyclists across abandoned railroad tracks to Elm Street and neighborhoods to the east.

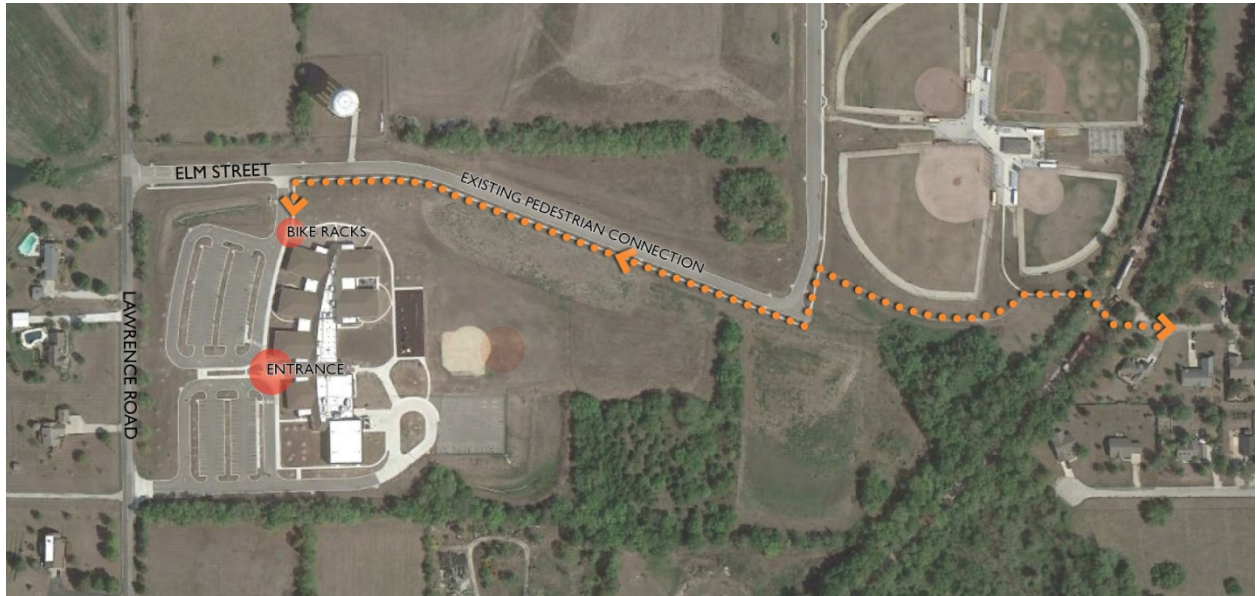


Figure 31. Existing pedestrian connection to Baldwin Primary Center

Lawrence Road, a two-lane road with no sidewalks and ditches on each side, is the only road connecting the school to development to the south.



Figure 32. Lawrence Road.



## Morning Observation

AM arrival occurred between 7:40AM and 8:05AM.

Observation occurred on the sidewalk between the two separate parking lots west of the main entrance. 7 buses dropped off students in the bus unloading zone on the east side of the school, but the majority of students (approximately 150) were dropped off by car at the designated drop-off location near the front doors. Some parents parked and walked their children to the front doors. No walkers or bicyclists were observed.

## Afternoon Observation

PM departure occurred between 3:10PM and 3:35PM.

Observation point for departure was the same location as the arrival observation point in the AM. Three staff members managed pick-up and directed students to their parents when they arrived in the pickup zone in front of the school. Bus riders were released from the east and south building entrances. Some parents parked and escorted their children from the front doors to their car. No walkers or bicyclists were observed.



Figure 33. Observed car and bus access to Baldwin City Elementary Primary Center.

# Baldwin City Elementary School - Intermediate

## Field Observation Notes

Date: 8 May 2013

School: Baldwin City Elementary School Intermediate Center

Weather: AM: 57 degrees with overcast skies - between rain showers;

PM: 72 degrees and sunny

Arrived and began observation: 7:00AM, 3:00PM

## Policy and procedure for student arrivals

Baldwin City Intermediate is located at the corner of US 56 Highway and Bullpup Drive. The School receives bus riders along the north driveway. These students enter the front door along with students whose parents drop them off at the west driveway loop.



Figure 34. Baldwin City Intermediate School campus.

Walkers and bicyclists are allowed to enter the south door along with students dropped off by parents in the south lot.







Figure 35. Baldwin City Intermediate School's south entrance accommodates walkers, bicyclists and students dropped off by car.

Comb style bike racks are provided at the south end of the building between the ball fields and the south entrance along the main sidewalk.



Figure 36. Bike racks are placed conveniently for students arriving from the south sidewalk.

## Development around the school

Baldwin City Intermediate lies on the western edge of the City, divided from the main residential areas by US-56 Highway and the tracks of the Midland Railroad. This is not a through-route for the rail line, and is inactive, serving as storage for historic rail cars. It does, none-the-less pose a barrier for the community as east-west roadways do not cross the tracks between US-56 Highway and High Street.

## Access

Since the community's residential roads dead-end before crossing the tracks located just east of the school, walking connectivity is limited. Elm Street, one of these dead-end roads, does provide designated pedestrian access across the tracks and routes walkers and bicyclists via a trail connection between the parked rail cars (separated by fence) then through the hub of the ball fields and on to the School.



Figure 37. Most residential development in Baldwin City is separated from the Intermediate School by the Midland Railroad tracks. This crossing at Elm is the only access across the tracks between US 56 Highway and High Street.





Figure 38. Development is focused to the southeast of the school, yet lack of railroad crossings, streets and sidewalks means the school has limited connection points. The orange arrows indicate walking/biking patterns around the intermediate school.



Though Elm Street does provide the best connection to the Intermediate Center, the road does not include sidewalks; the children must walk in the road to get to the connection point.



Figure 39. Children must walk in the road on Elm Street to access the railroad crossing.



In the neighborhoods to the east, remnant sidewalks are present, but they are predominantly intermittent and lacking curb ramps. These are some of the oldest neighborhoods in Baldwin City, flanking the 1858 Baker University Campus. The original cross-sections include wide setbacks between road edges and homes, with the sidewalks closer to the homes than the roadways.



Figure 40. Original sidewalks are set far away from roadways.

## **Morning Observation**

AM arrival occurred between 7:44 and 8:10.

Observation Point #1. Observation occurred on the south side of the building from the south side of the parking lot. (Figure 34)

Though it was a rainy morning, 3 walkers and 2 bike riders were observed approaching the school. All came from the sidewalk from the south between the ball fields.

## **Afternoon Observation**

PM departure occurred between 3:15 and 3:25.

Observation point for departure was the same location as the arrival observation point in the AM. 10 walkers were observed departing; 4 of which split off at the ball fields' "hub" and turned west then south along Bullpup Drive. They proceeded west on Elm Street toward the Elementary School. The 2 bicycle riders returned home over the railroad crossing.



## Travel Patterns

Bicycle and pedestrian traffic is confined to two possible directions, east over the railroad tracks at Elm or west along Elm toward the Elementary School. The majority of housing lies to the east, making the railroad crossing the most travelled route. (Figure 38)

## Potential Connectivity for the Future

Baldwin City has great potential for City-wide connectivity with multimodal infrastructure. The 2007 Safe Routes to School Plan has been a terrific start to connecting neighborhoods to schools. Some of the work planned in the SRTS program has already been accomplished and some is yet to occur.

Particularly beneficial to the SRTS program is the construction KDOT began in spring 2013 on three bridges along US-56 Highway. The easternmost box culvert reconstruction between 10th and 11th street will include sufficient width for and the construction of two 5 foot sidewalks, one on each side of the highway. This was not anticipated within the SRTS Plan, and will provide a terrific connection for students walking and biking to the Primary and Intermediate Schools from the east.



Figure 41. KDOT in the process of widening the middle box culvert on US Highway 56 at 11th Street. According to the inspector on-site, the cross section here (near 11th Street) will also include a 5 foot sidewalk on each side of the highway.

An open area from the newer subdivisions to the northeast offers a safe alternative and shorter route to the Primary and Intermediate Schools. A walk or trail could connect the walk at Blaze Boulevard/Flame Way in Firetree Estates to the sidewalks near the retail area along Highway 56. A spur could connect over to Silver Leaf Lane as well (Figures 42, 43). Because of the presence of manholes in this corridor, this appears to be a sewer easement, yet exact alignment of the pipe is unclear.

Further Bicycle/Pedestrian infrastructure could follow the stream corridors that crisscross Baldwin City along beautiful, tree-canopied channels. (Figure 44)

The rail corridor currently owned by Midland Railroad between High Street and US Highway 56 could also provide a valuable north-south connection in the western portion of town. The tracks are currently in use as storage for historic railcars. Partnerships could be formed to provide space near the historic depot to enhance the visitor's experience and showcase these rare railway vehicles freeing up the railway north of High Street for bike/ped traffic. (Figure 44)



Figure 42. Potential walk/trail connection from Firetree Estates



Figure 43. Potential Firetree connection.





