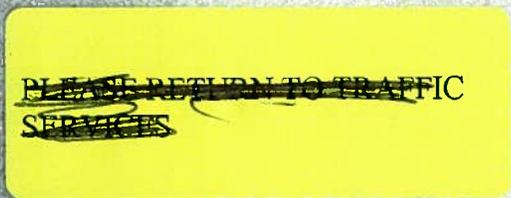


Chinden Boulevard Corridor Study

June 21, 1999



Prepared for:



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Chinden Boulevard Corridor Study

Ada County Highway District

INTRODUCTION

Chinden Boulevard is a major east-west highway that is owned and maintained by the Idaho Transportation Department and serves the communities of Eagle, Meridian, Garden City, and Boise, as well as Caldwell, Notus, and Parma to the west. The study limits for the Chinden Boulevard Corridor Study range from Interstate 184 at the eastern end to the Canyon County line at the west end. Daily traffic volumes range from 6,000 vehicles per day at the western end of the corridor to 42,000 vehicles per day at the eastern end. As can be seen from the range in traffic volumes throughout the study area the density of development varies substantially along the corridor.

Recent planning studies, including the Bench-Valley Transportation Study and Eagle Road Access Control Study, have identified the importance of Chinden Boulevard as part of the regional transportation system. As Chinden Boulevard east of Glenwood Road approaches its traffic carrying capacity, the traffic volumes on adjacent Adams and Alworth Streets have increased to accommodate the east-west travel demand. Traffic detouring to other roadways is not desirable due to the increased vehicle trip lengths, fuel costs, vehicle emissions, and traffic impacts on roadways that are more residential in character.

The Ada County Highway District (ACHD) has recognized the importance of Chinden Boulevard by identifying this corridor for a future access controlled arterial. ACHD retained MK Centennial to develop access management guidelines for this corridor that would progressively increase the access restrictions from the existing condition to a future access-restricted arterial. These guidelines identify approach and intersection locations, median types and locations, and intersection traffic control. ACHD will employ these guidelines as they review development requests and as they program future roadway improvements on Chinden Boulevard. These controls and improvements could occur over a long period of time depending upon the rate of development and traffic growth along this corridor.

OVERVIEW OF ACCESS MANAGEMENT

Access management is the control and regulation of driveways, medians, median openings, traffic signals and interchanges to minimize disruption to the through travel movements on a roadway. The goals of access management are to:

- limit the number of conflict points,
- reduce interference with through traffic due to side street friction,

- provide sufficient spacing between at-grade intersections,
- eliminate or reduce speed differentials,
- minimize impacts to existing and future developments, and
- minimize the expenditure of public funds.

Some drawbacks to access management include a reduction in the operational flexibility for emergency vehicles, an increase in left turn volumes at median openings, increased travel time for some motorists, and access limitations to adjacent properties. It is recommended that provisions be made for emergency vehicles when implementing access management in order to minimize the impacts to emergency services. With regard to the perceived economic impact to adjacent developments, studies conducted in Texas, Georgia, and California have shown overall no negative impact to existing businesses along access managed corridors. ¹ These issues are discussed in more detail in the *Implementation Policy* which is available at ACHD.

A major benefit of access management is the improvement in safety (fewer accidents and less severe accidents). For example, the Georgia Department of Transportation experienced a 37 percent reduction in total accidents and a reduction of 48 percent in injury accidents over a two year period along one test arterial by reducing conflicts with the installation of raised medians. ²

Additional benefits include an increase in vehicle capacity and travel speeds when compared to roads without access management. Studies have shown that access management can increase the capacity of a roadway by as much as fifty percent, which is the same increase in capacity that can be experienced by widening a four lane roadway to six lanes, while simultaneously increasing safety and decreasing congestion. ¹ The improvements in capacity can prolong the functional life of existing roadways without the construction of additional lanes, maximizing the public's infrastructure investment.

REPORT OUTLINE

The report is organized into three major sections with an Appendix for supporting information. The report is organized as follows:

Section 1 - Access Management Concepts: Provides a detailed description of the decision process used to determine the recommended signal spacing, spacing of median openings, and driveway spacing. It also includes a discussion of at-grade intersections.

Section 2 - Recommended Conceptual Access Management Plans:

Presents the four recommended access management levels, giving a description of each level as well as the thresholds for phasing from one access management level to the next.

Section 3 - Site Specific Recommendations: Discusses the existing conditions, anticipated development patterns and detailed recommendations for individual roadway sections within the seventeen-mile corridor. This section also contains exhibits illustrating the recommended access management plans.

SECTION 1 - ACCESS MANAGEMENT CONCEPTS

This section discusses the three major access management concepts evaluated in this study:

- Marginal Access Management,
- Medial Access Management, and
- Major Intersection Management.

These access management techniques were evaluated based on established standards presented in the National Cooperative Highway Research Program (NCHRP) Report 348 and in access management programs adopted by other states. A detailed description of the decision process used to establish the recommended conceptual access management plan is shown below. A summary of the access management spacing criteria used by other states and recommended in various technical sources can be found in the Appendix.

MARGINAL ACCESS MANAGEMENT CONCEPTS

The driveway spacing and design are the major elements of marginal access management. There are several different criteria currently used to establish driveway spacing:

- stopping sight distance,
- intersection sight distance,
- length of turn lanes,
- right-turn conflict overlap, and
- egress capacity.

Stopping sight distance is one of the methods used by some states to determine minimum driveway spacing. This value is based on the American Association of State and Highway Transportation Officials (AASHTO) stopping sight distance for wet pavements, assuming a coefficient of friction of 0.29. This distance provides for the minimum stopping sight distance between successive driveways. For design speeds of 55, 45, and 35 mph, the AASHTO minimum stopping sight distances are 550, 400, and 250 feet respectively.

The minimum AASHTO intersection sight distance assumes that the stopped vehicle makes the turn and accelerates to 85 percent of the speed of traffic on the major roadway. This assumes that on-coming traffic on the major roadway decreases speed by approximately 15 percent. The minimum AASHTO intersection sight distances for design speeds of 55, 45, and 35 mph are 990, 710, and 470 feet respectively.

The length of turn lane criteria is based on the 1990 AASHTO "Green Book" statement that "Driveway terminals are in effect at-grade intersections....and....driveways should not be situated within the functional boundary of at-grade intersections. This boundary would include the longitudinal limits of the auxiliary left-turn and right-turn lanes." Under this criteria, the desirable minimum driveway spacings for design speeds of 55, 45, and 35 mph are 875, 630, and 425 feet respectively.

The right turn conflict overlap provides for the minimum distances required to avoid conflict overlap between adjacent driveways. This criterion calls for adequate separation of conflicts to allow the driver to concentrate on one driveway at a time. The minimum spacing required for design speeds of 35 and 45 mph to eliminate right turn conflict overlap is 150 and 300 feet respectively. Right turn conflict overlap does not have spacing requirements for speeds greater than 45 mph due to the fact that the resulting high speed differentials in the through traffic lanes pose a potential collision problem on high speed, high volume streets and roads.

The last method employed for determining minimum driveway spacing is maximum egress capacity. This is based on the assumption that driveways spaced at distances greater than 1.5 times the distance required to accelerate from zero to the speed of through traffic will reduce delay to vehicles entering the traffic stream and will improve the traffic absorption characteristics of the traffic stream. The minimum driveway separations to allow maximum egress capacity for design speeds of 55, 45, and 35 mph are 1500, 860, and 450 feet respectively.

The recommended marginal access spacing for the access management plans was based on the 1990 AASHTO stopping sight distance for a design speed of 55 mph west of Coffey Street and 35 mph east of Coffey Street which is 550 and 250 feet respectively. These spacings were rounded to 660 and 330 feet to allow for an even spacing along a mile section. The AASHTO stopping sight distance is the recommended spacing criteria as this provides for safe ingress and egress while allowing access to the developments on the corridor. The other criteria mentioned above is based on minimizing the speed differential. On Chinden Boulevard, it is assumed that approaches will have acceleration and deceleration lanes as required in order to address this concern. It is recommended that approaches which are unable to meet the minimum spacing criteria be labeled temporary. At such time that alternate access is made available, the temporary access can be restricted or eliminated.

Driveway design greatly effects the speed differential that ingress and egress vehicles have on the through traffic. The width of the driveway (or cross street) and the curb return radii directly impact the speed at which vehicles can turn off of the arterial. The availability of acceleration and deceleration lanes can minimize the speed differential experienced between vehicles turning into an approach and through traffic on the major

street. Appropriately designed acceleration and deceleration lanes would improve safety and capacity along Chinden Boulevard. The need for right turn deceleration lanes and right turn acceleration lanes at individual access points along the corridor should be evaluated based on ACHD's established warrants as development occurs. The curb radii and driveway widths should be based on ACHD's current development policies.

MEDIAL ACCESS MANAGEMENT CONCEPTS

The design of medians as an access management measure involves the following elements:

- median type,
- median width,
- the geometrics of median openings, and
- spacing of median openings.

Three various types of median designs include non-traversable, traversable, and continuous two-way left turn lanes. A description of these various median types and a brief list of the benefits and drawbacks of each is shown in the Appendix. The median type recommended for Chinden Boulevard is non-traversable retrofitted to replace the continuous two-way left turn lane along the study section. Non-traversable medians and continuous two-way left turn lanes were not considered as these median types provide no physical restrictions to eliminate conflict points. One contingency to the installation of the raised non-traversable median, is that U-turn provisions must be available at the upstream and downstream signalized intersections. The installation of a raised median will eliminate uncontrolled left turns, thereby increasing roadway capacity and minimizing conflict points. Studies have shown that two-way left turn lanes often do not function safely or efficiently when traffic volumes exceed 24,000 vehicles per day.² A table showing the traffic volumes along various segments of the Chinden Boulevard corridor is included in the Appendix.

The spacing of median openings is another important design element to be considered when developing an access management plan. The spacing of these openings can vary based on the posted speed, the functional classification of the roadway, and/or the density of development adjacent to the roadway. Based on information obtained from access management spacing criteria used by other states, and various technical sources, the minimum median spacings range from 330 feet to 1320 feet in urban, low speed areas and from 660 feet to 2640 feet in suburban or rural, higher speed areas. A summary of the access management spacing criteria used by other states and recommended in various technical sources can be found in The.

Based on the recommended marginal access spacing detailed in the previous section, the recommended spacing for median openings is 660 feet on Chinden Boulevard west of Coffey Street, and 330 feet east of Coffey Street. Median openings would be subject to closure when signal warrants are met, but the recommended signal spacing detailed in the next section is not. An exhibit showing a typical median opening at a minor approach is included in the Appendix. A 50 foot minimum storage length is shown, however the storage length can vary based on the left-turning volume, and/or the types of left-turning vehicles at the subject approach.

The impacts of concentrating left-turning vehicles to a single location will need to be evaluated on a case-by-case basis. The table titled "Sum of Left-Turn and Opposing Volumes During the Peak Hour Necessary to Create a Left-Turn Delay Problem", shown in the Appendix, may be used when evaluating individual access points. If the sum of the opposing and left-turn volumes indicates that there may be a left-turn delay problem further consideration will need to be given to determine if access alternatives are available.

MAJOR INTERSECTION MANAGEMENT CONCEPTS

The major intersection management concepts consider the type, design and spacing of major intersections along the arterial. This analysis included evaluation of at-grade intersections along the corridor with the exception of the Eagle Road and Chinden Boulevard intersection. A grade-separated interchange is recommended at this location based on evaluations previously performed in the Eagle Road Access Control Study. The recommended grade-separated interchange would have Eagle Road pass under Chinden Boulevard while Chinden would remain signalized at the interchange ramps. Detailed information on the decision process used for recommending a grade-separated interchange at this location, as well as a description, can be found in the Eagle Road Access Control Study. Exhibits showing the two types of interchanges considered can be found in the Appendix. The access management plans, which are described in Section 2, allow access to Chinden Boulevard via at-grade intersections with uniform signal spacing and the grade-separated interchange at the Chinden Boulevard/Eagle Road intersection. Chinden Boulevard will remain signalized at the ramp terminals from Eagle Road.

At-Grade Intersections

Spacing and traffic control are key issues for the at-grade intersection access management concept. The access management levels for Chinden Boulevard, levels 1 through 4, recommend signalization of the existing major arterial intersections and the half-mile collector roads east of Locust Grove at such time that signalization is warranted. In determining the optimum traffic signal spacing, three variables were

considered:

- the desired speed of the progression platoon,
- the traffic signal cycle length, and
- minimizing vehicle delay along the arterial.

The choice of cycle length was based on the ability to move traffic through critical intersections, to provide adequate time for pedestrians to cross wide streets, to achieve efficient signal coordination at desired speeds, and to provide adequate platooning. Uniform signal spacing of one mile allows for operating speeds of 60 mph at cycle lengths of 120 seconds. A signal spacing of one-mile is recommended on Chinden Boulevard west of Locust Grove Road based on the assumption that the development density throughout this segment of the corridor will be low. Signals may be installed at the half-mile collectors when signal warrants are met at these locations if development densities require additional capacity that cannot be achieved through one-mile signal spacing. However, with the number of existing developments east of Locust Grove Road a signal spacing of a half-mile is recommended for this segment of the corridor. This spacing will provide controlled access for adjacent developments and adequate platooning to provide gaps at unsignalized access points. Half-mile uniform spacing allows for average progressive speeds of 40 mph at cycle lengths of 90 seconds or 30 mph at cycle lengths of 120 seconds. By locating the signals at half-mile spacing, offsets can be designed to allow eastbound and westbound traffic to use all of the available green time. If the signal spacing is reduced to one-third mile, the progression speed drops to 20 mph at a cycle length of 120 seconds.

The design of the at-grade intersections along the corridor is also critical in order to provide optimal progression and minimize delay. It is recommended that right-of-way is preserved for dual left-turning lanes, two through lanes, and an exclusive right-turn lane at all approaches of the intersecting arterials along Chinden Boulevard. Provisions should also be made for U-turns on Chinden Boulevard at the intersecting arterials and collectors. This recommended configuration should be re-evaluated at the time of the actual intersection design based on the twenty-year projected turning movement volumes. An exhibit showing the recommended typical Chinden Boulevard/arterial street intersection is included in the Appendix.

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SECTION 2 - RECOMMENDED CONCEPTUAL ACCESS MANAGEMENT PLANS

Four different access management plans (levels 1 through 4) were developed to progress from the existing access conditions to a future access controlled arterial. The progression of access management along Chinden Boulevard is recommended in order to minimize the impact to adjacent developments, to allow for the development of a collector street network, and to minimize the expenditure of public funds through the acquisition of right-of-way for improvements as development occurs along Chinden Boulevard. Each recommended access management plan is detailed below, followed by the thresholds for progressing between each level. Two different access management plans are shown, one plan east of Coffey Street and one plan west of Coffey Street, to reflect the difference in development density along the corridor. Coffey Street was chosen as the break point as densities change considerably at this location, and the speed limit changes from 45 mph (west) to 35 mph (east). Exhibits showing the typical access management plans are included in the Appendix. Exhibits illustrating site-specific access management plans are included in Section 3.

LEVEL 1 ACCESS MANAGEMENT PLAN

Chinden Boulevard west of Coffey Street

Level 1 access management allows for a signal spacing of one-mile at the arterial streets and full access for half-mile collector roads, quarter-mile local roads and eighth-mile private driveways. Medians should be installed along the length of the corridor, with openings for full access at eighth-mile (660 feet) spacing. Signals may be installed at the half-mile collectors when signal warrants are met at these locations if development densities require additional capacity that cannot be achieved through one-mile signal spacing. Level 1 access management should be implemented along sections that do not currently meet the minimum 660 foot spacing.

Chinden Boulevard east of Coffey Street

On this segment of the corridor there are a great number of existing private commercial approaches that intersect Chinden Boulevard. The spacing between the local streets varies throughout this segment and falls below 660 feet east of 36th Street. Level 1 access management allows full access along the entire length of this segment of Chinden Boulevard with non-traversable medians at high accident locations only, and along those segments of the roadway that redevelop. Signals may be installed at the half-mile collectors when signal warrants are met at these locations. Level 1 access management should be implemented with the intention of allowing for 330 feet spacing

between median openings.

LEVEL 2 ACCESS MANAGEMENT PLAN

Chinden Boulevard west of Coffey Street

Level 2 access management eliminates the left turns at the eighth-mile driveway approaches through the installation of raised medians. The medians should be installed in lieu of signals when signal warrants are met at these locations. A variation to the median design to prohibit left-turns out with left-turns in permitted may be an interim condition to the elimination of all left-turning vehicles at the eighth-mile approaches. The one-mile signal spacing at arterial streets, and the half-mile collector and quarter-mile full access at local roads is maintained for Level 2. By maintaining half-mile and quarter-mile full access points, improved circulation is achieved during the development of the local roadway network. Signals may be installed at the half-mile collectors when signal warrants are met at these locations if development densities require additional capacity that cannot be achieved through one-mile signal spacing. Progression from Level 1 to Level 2 should be evaluated between two signalized intersections minimum, with median installation at individual intersections as required.

Chinden Boulevard east of Coffey Street

Level 2 access management eliminates left-turns between median openings spaced at 330 feet through the installation of a non-traversable raised median. All full access private approaches and local streets within 660 feet of signalized intersections would also be restricted to right-in / right-out through the installation of non-traversable raised medians. The medians would be installed in lieu of signals at such time that signals are warranted at these locations. Full access would be provided at all public street approaches that do not intersect Chinden Boulevard within 660 feet of the signalized intersections. The half-mile signal spacing at collector and arterial streets is maintained for Level 2. Progression from Level 1 to Level 2 should be evaluated between two signalized intersections, with median installation at individual intersections as required.

LEVEL 3 ACCESS MANAGEMENT PLAN

Chinden Boulevard west of Coffey Street

Level 3 access management maintains the one-mile signal spacing at arterial streets, with the elimination of full access at the half-mile collector streets and the quarter-mile local roads through medial management. The medians would be installed in lieu of signals at such time that signals are warranted at these locations. A variation to the median design to prohibit left-turns out with left-turns in permitted may be an interim

condition to the elimination of all left-turning vehicles at the quarter-mile approaches. Signals may be installed at the half-mile collectors when signal warrants are met at these locations if development densities require additional capacity that cannot be achieved through one-mile signal spacing. Level 3 should be implemented along a continuous one-mile segment of roadway, or between two signalized intersections.

Chinden Boulevard east of Coffey Street

Level 3 access management would restrict all private approaches to right-in / right-out with full access at local street intersections only. The medians would be installed in lieu of signals at such time that signals are warranted at these locations. A variation to the median design to prohibit left-turns out with left-turns in permitted may be an interim condition to the elimination of all left-turning vehicles at the private approaches. Level 3 should be implemented along a continuous half-mile segment of roadway, or between two signalized intersections.

LEVEL 4 ACCESS MANAGEMENT PLAN

Chinden Boulevard west of Coffey Street

Level 4 access management eliminates all direct access to Chinden Boulevard between the signalized intersections. Progression to Level 4 should be evaluated and implemented between two signalized intersections.

Chinden Boulevard east of Coffey Street

Level 4 access management for Chinden Boulevard east of Coffey Street restricts all local streets to right-in / right-out access through the installation of non-traversable raised medians at these locations. The medians should be installed in lieu of signals when signal warrants are met at the local street intersections. A variation to the median design to prohibit left-turns out with left-turns in permitted may be an interim condition to the elimination of all left-turning vehicles at the local street approaches. Progression to Level 4 should be evaluated and implemented between signalized intersections.

THRESHOLD VALUES FOR ACCESS MANAGEMENT PHASING

The threshold values discussed on the following pages, and shown in the exhibits on pages 14 and 15, were developed based on established warrants from the Highway Capacity Manual (HCM), Manual on Uniform Traffic Control Devices (MUTCD), and AASHTO. These guidelines are currently used by many other states and are discussed in the NCHRP Report 348 *Access Management Guidelines for Activity Centers*. Specific volume or accident numbers were not used as a basis in developing these

thresholds in order to allow them to be dynamic to changes in traffic engineering practices. This allows the plan to be responsive to development of the corridor, and changes or updates to the HCM, MUTCD, or ACHD policies regarding acceptable levels of service.

Chinden Boulevard west of Coffey Street

Level 1 to Level 2

Progression from Level 1 to Level 2 along a segment should be implemented when an eighth-mile approach satisfies the signal warrants established in the MUTCD as determined by ACHD. By retrofitting a raised median on the two-way left-turn lane, left turns in and out of the approach are eliminated as well as 30 of 34 potential conflict points. These approaches must be modified before the quarter-mile local streets in order to prevent local street traffic from accessing a full access driveway through a private development. Phasing from Level 1 to Level 2 can occur at individual intersections; however, half-mile segments should be evaluated to maintain the functional integrity of the system. Left turns at a private approach should not be eliminated until U-turn capabilities are provided at the next signalized intersection.

Level 2 to Level 3

Segments should begin progression from Level 2 to Level 3 when a quarter-mile local street satisfies the signal warrants established in the MUTCD as determined by ACHD. Access to the quarter-mile local street should then be modified with the installation of a continuous raised median between half-mile full access intersections, thereby eliminating the left turning movements. Similar to Level 2, this reduces the number of potential conflict points from 34 to 4 at the quarter-mile intersections. Phasing from Level 2 to Level 3 should occur along a continuous half-mile segment of roadway minimum.

Level 3 to Level 4

When Chinden Boulevard begins to breakdown as a suburban arterial, implementation of the Level 4 access management plan should begin. The Highway Capacity Manual characterizes the breakdown of a suburban arterial by a significant decrease in the average vehicle-speed and/or a high number of accidents. All accesses between two signalized intersections would lose direct access to Chinden Boulevard when the LOS is unacceptable according to the HCM and current ACHD policy. Alternative access must be provided to properties prior to the elimination of access to Chinden Boulevard. In Level 4, signalized intersections would be maintained at one-mile spacing, and would provide the only direct access to Chinden Boulevard.

Chinden Boulevard east of Coffey Street

Level 1 to Level 2

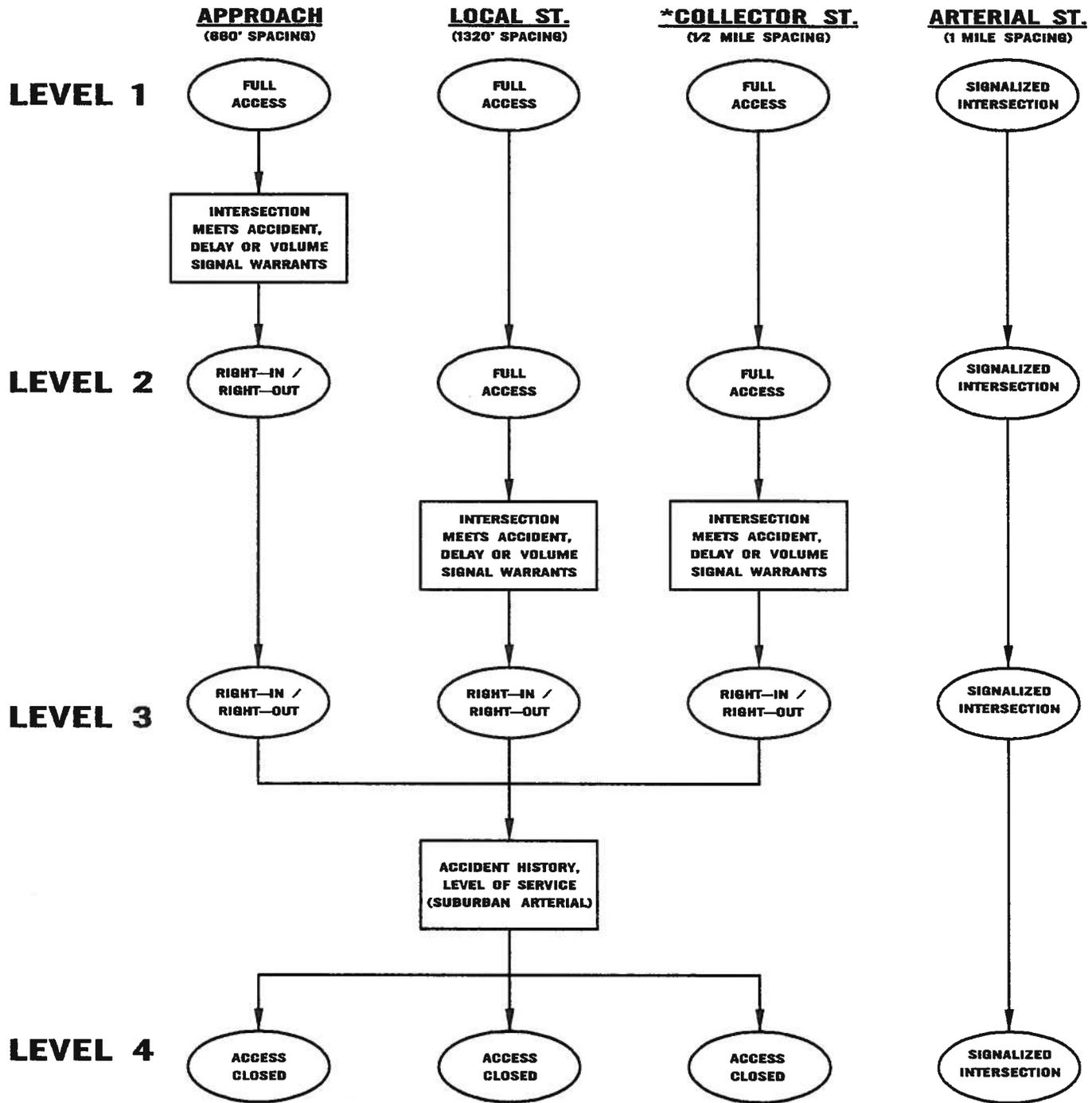
Progression from Level 1 to Level 2 should be implemented when a private approach or a series of private approaches satisfies the signal warrants established in the MUTCD as determined by ACHD. The retrofitting of a non-traversable median on the two-way left-turn lane, eliminates left turns in and out of the approach as well as 30 of 34 potential conflict points. These private approaches must be restricted before the local streets in order to prevent local street traffic from accessing a full access driveway through a private development. Phasing from Level 1 to Level 2 can occur along short segments of roadway; however, half-mile segments should be evaluated to maintain the functional integrity of the system. Left turns at a private approach should not be eliminated until U-turn capabilities are provided at the next signalized intersection.

Level 2 to Level 3

Segments should begin progression from Level 2 to Level 3 when a full access private approach at 330 feet spacing satisfies the signal warrants established in the MUTCD as determined by ACHD. Access to these approaches should then be modified with the installation of a non-traversable raised median which eliminates the left turns. Similar to Level 2, this reduces the number of potential conflict points at these private approaches to four. Phasing from Level 2 to Level 3 can occur along short segments of roadway; however, half-mile segments should be evaluated to maintain the functional integrity of the system. Full access would be maintained at the local streets.

Level 3 to Level 4

Progression from Level 3 to Level 4 should be implemented when a full access public street satisfies the signal warrants established in the MUTCD as determined by ACHD. Access to the local streets which meet signal warrants should then be modified with the installation of a non-traversable raised median between half-mile signalized intersections thereby eliminating the left turns. Phasing from Level 3 to Level 4 should occur along a continuous half-mile segment of roadway, or between signalized intersections.



LEGEND:

() CONTROL TYPE

[] WARRANTS

NOTES:

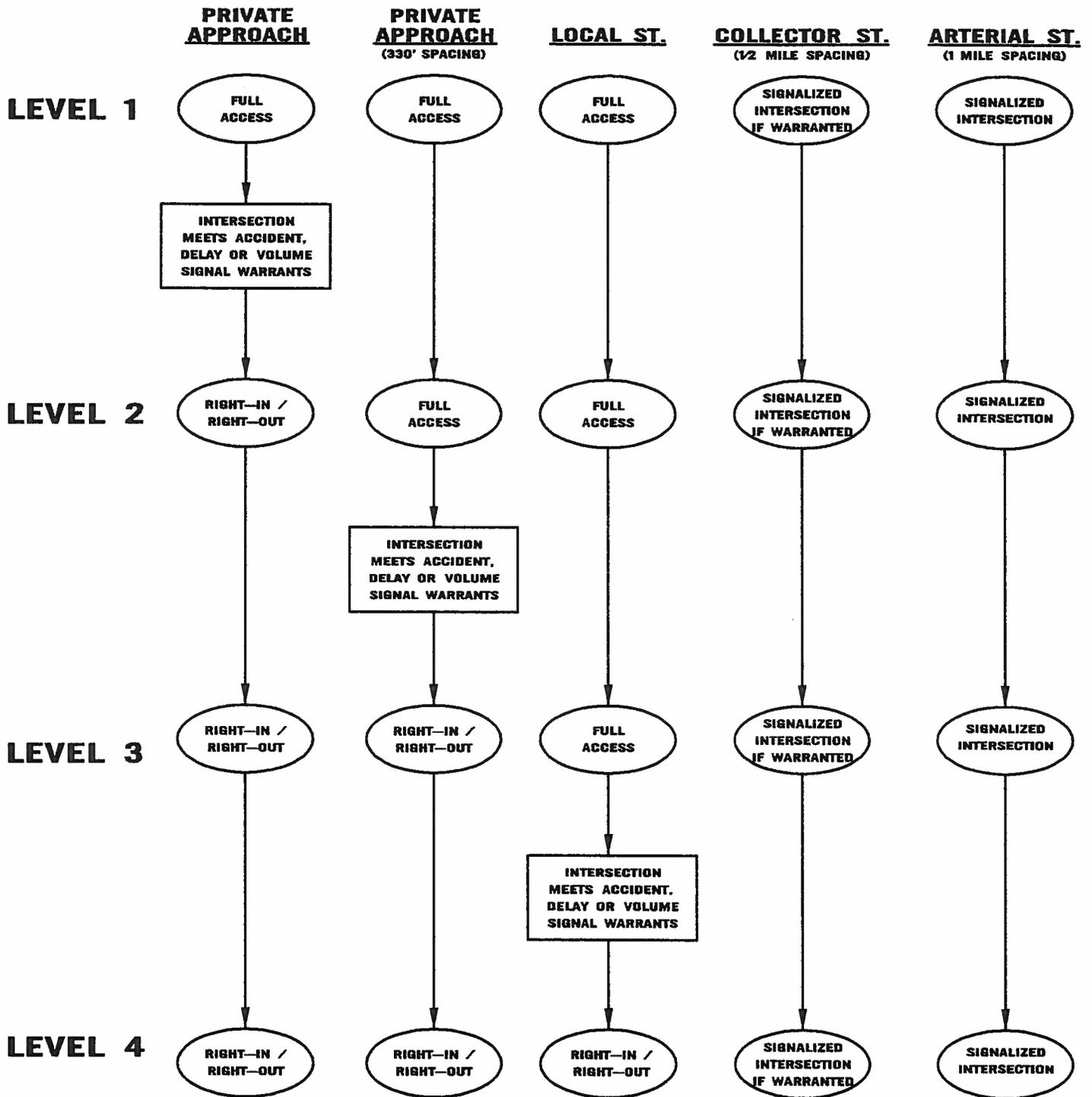
U-TURN CAPABILITY MUST BE PROVIDED AT SIGNALIZED INTERSECTIONS PRIOR TO RIGHT-IN/RIGHT-OUT CONTROL.

ALTERNATIVE ACCESS MUST BE PROVIDED TO PROPERTIES PRIOR TO CLOSURE OF ACCESS.

* SIGNALS MAY BE INSTALLED AT THE HALF-MILE COLLECTORS WHEN SIGNAL WARRANTS ARE MET AT THESE LOCATIONS IF DEVELOPMENT DENSITIES REQUIRE ADDITIONAL CAPACITY THAT CANNOT BE ACHIEVED THROUGH ONE-MILE SIGNAL SPACING.

CHINDEN BOULEVARD CORRIDOR STUDY ACCESS MANAGEMENT PHASING (WEST OF COFFEY STREET)





LEGEND:



NOTES:

U-TURN CAPABILITY MUST BE PROVIDED AT SIGNALIZED INTERSECTIONS PRIOR TO RIGHT-IN/RIGHT-OUT CONTROL.

ALTERNATIVE ACCESS MUST BE PROVIDED TO PROPERTIES PRIOR TO CLOSURE OF ACCESS.

FULL ACCESS MUST BE PROVIDED TO THE FIRE STATION THROUGHOUT ALL PHASES OF ACCESS CONTROL.

CHINDEN BOULEVARD CORRIDOR STUDY ACCESS MANAGEMENT PHASING (EAST OF COFFEY STREET)



SECTION 3 - SITE SPECIFIC RECOMMENDATIONS

The following section presents the recommended access plan for the entire length of the corridor describing the existing conditions, the anticipated development patterns, and the key features of the recommended access management plan. Detailed maps of each level of the access management plan have also been included. The traffic counts shown are based on ITD counts taken in recent years. A complete table of existing volumes, 2015 volumes, and estimated capacities for each segment of the corridor is shown in the Appendix. Land use assumptions, proposed developments, and rezones were based on the information provided by ACHD development services staff and Meridian, Eagle, and Garden City comprehensive plans. Because the degree of development varies throughout the length of Chinden Boulevard, a standardized access management plan cannot be developed for a typical mile section. Therefore, individual sections between major arterials or collectors were evaluated for the study area in the following site specific analysis section.

The collector road network is also an important element of the recommended access management plan for each segment of roadway. This network is essential in order to provide alternative access to the developments adjacent to Chinden Boulevard. The construction of a half-mile collector street network should be implemented as development occurs along the corridor. To the east of Coffey Street, the development of this collector street network is restricted by the location of the bench to the south and the existing developments and roadway network to the north. It is recommended that improvements be made to Osage and Stockton Streets throughout the implementation of the following access management plans to allow alternative access for those businesses that front Chinden Boulevard through Garden City. It is also recommended that ACHD consider the construction of a new roadway parallel to the Settlers Canal east of 41st Street to provide an east-west roadway for those developments south of Chinden Boulevard.

CHINDEN BOULEVARD (CAN-ADA ROAD TO MCDERMOTT ROAD)

Review of Existing Conditions

Chinden Boulevard, from Can-Ada Road to Star Road, is currently a rural two-lane roadway section with a posted speed limit of 55 mph. ITD traffic counts taken in recent years show an Average Daily Traffic (ADT) volume of 6,100 on Chinden Boulevard between Can-Ada Road and Star Road. This mile section of the corridor is primarily a rural area with agricultural land and eight single family homes with direct lot access to Chinden Boulevard. The eastbound direction of this segment of roadway has five access points, while the westbound direction has four. These access points serve the agricultural land and single family homes that currently exist along this portion of

Chinden Boulevard. The existing single family homes currently do not have an alternative to accessing Chinden Boulevard. There are no public or private streets that intersect Chinden Boulevard on this segment of the corridor. The intersection of Star Road and Chinden Boulevard is currently signalized.

Chinden Boulevard, from Star Road to McDermott Road, is currently a rural two-lane section with a posted speed limit of 55 mph. This segment of roadway is primarily a rural area with agricultural land and several single family homes. The current developments include the Mint Ranchettes Subdivision, which includes three single family homes with direct lot access to Chinden Boulevard, and seven single family residential homes which also have direct lot access to Chinden Boulevard. The eastbound direction of this segment of roadway has seven access points, while the westbound direction has eight. These access points serve the existing agricultural fields and single family homes on this roadway section. The existing single family homes, with the exception of one, currently do not have an alternative to accessing Chinden Boulevard. There are no public or private streets that intersect Chinden Boulevard on this segment of the corridor.

Development Patterns

It is anticipated that this section of roadway between Can-Ada Road and McDermott Road will develop primarily as a residential area. ACHD has not received any recent development applications for this section of Chinden Boulevard.

Key Features of the Recommended Access Management Plan

This section of roadway from Can-Ada Road to McDermott Road is one of the undeveloped segments of Chinden Boulevard within the study limits. Therefore, the recommended conceptual access management plans can be strictly applied to this section of roadway. Access restrictions would increase at the unsignalized access points as Level 1 progresses to Level 4. Future traffic signals are anticipated on this roadway segment at the Can-Ada and Chinden intersection, and the McDermott and Chinden intersection. Signals may be installed at these locations at such time that signalization is warranted. It is recommended that the signal at the intersection of Star Road and Chinden Boulevard remain in the future. Approaches should be spaced at a minimum of 660 feet with the local streets at 1,320 feet and the collector streets at 2,640 feet.