

TOWN CENTER STREET GRID CADASTRAL CONTROL STUDY REPORT CITY OF WILDWOOD

Prepared for:



City of Wildwood
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CDG Project No. 97002

September 29, 1997

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EXECUTIVE SUMMARY

The proposed Town Center Street Grid generally works within the core area that is surrounded by Highway 100 to the north; Highway 109 to the west; Old Manchester Road to the south, and Taylor Road to the east. The development of the area north of Highway 100 and just west of Taylor Road will not conform to the proposed master plan layout. In order to construct the roads as portrayed in the master plan, it will be necessary to drastically alter the landscape in this area. It is recommended that the zoning code, as presented in the master plan, be re-worked. We found the code to be a difficult document to interpret. In particular, the minimum and maximum lot widths and depths should be re-evaluated to incorporate minimum area requirements. This is necessary in order to develop odd shaped city blocks.

The drawings prepared for this report incorporates the street widths as decided upon by the Town Center Committee. CDG Engineers recommends that the street widths be widened. Minimum lane width recommendations have been included in Section 8 of this report (Conclusions and Recommendations).

I. INTRODUCTION

The City of Wildwood commissioned a Master Plan for the town center area. This plan was prepared by Andres Duany and Elizabeth Plater-Zyberk, Architects and Town Planners. Results of this study were released in March of 1996. After review of this master plan, the City commissioned CDG Engineers to review the document to determine if the proposed Jeffersonian grid is economically feasible. In particular, we were to evaluate the viability (for development) of the proposed street grid.

II. SCOPE OF WORK

CDG Engineers was commissioned in December of 1996 to review the Wildwood Town Center Master Plan (as revised on November 28, 1996). The following was within CDG's scope of work;

- CDG Engineers was to prepare city block drawings of the town center area. (See limits of work sketch Exhibit A). These drawings were to be prepared using a topographic base map.
- A preliminary street development study was to be prepared for use in determining if the proposed "grid" was economically feasible. Proposed street profiles based on city standards, were to be compared to existing profiles (obtained from topographic base map). We considered that it may be necessary to shift the grid system accordingly to facilitate development. However, every effort was to be made to retain the grid as proposed.
- Upon completion of the block mapping, all city block corners and city streets were to be defined using the Missouri State Coordinate System.

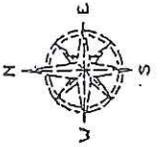
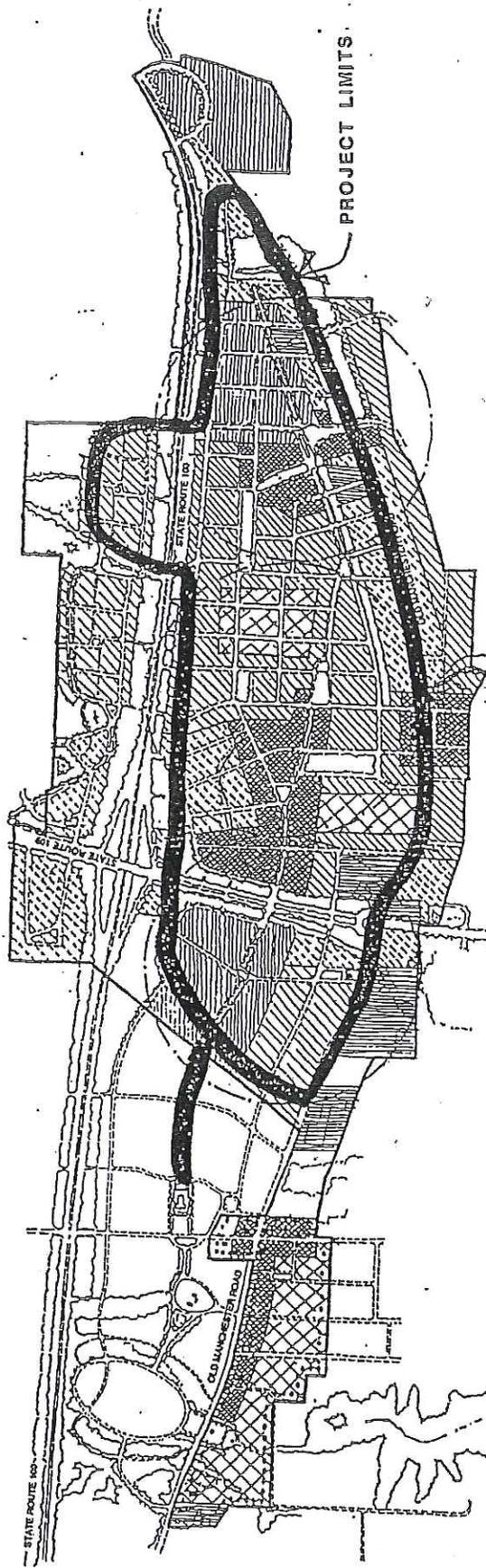
III. STUDY PHILOSOPHY

CDG Engineers and the Town Center Committee established the following philosophy for evaluating the Master Plan.

- Attempt to comply with the "spirit" of the Master Plan.
- Work within the rights-of-way existing streets:
 - Lindy Drive
 - Old Grover Subdivision Streets
 - Eatherton
 - Crestview
 - Niere Acres
 - Taylor Avenue
 - Old Manchester Road
 - State Routes 109 & 100

EXHIBIT A

WILDWOOD TOWN CENTER
WILDWOOD, MISSOURI
REGULATING PLAN



-  HISTORIC DISTRICT
-  HISTORIC BUILDINGS
-  OPEN SPACE RESERVE
-  SITES OF CIVIC IMPORTANCE
-  COMMERCIAL DISTRICT
-  WORK PLACE DISTRICT
-  NEIGHBORHOOD CENTER ZONE
-  NEIGHBORHOOD GENERAL ZONE
- NEIGHBORHOOD EDGE ZONE

- Prepare conceptual designs of street profiles so that the streets will work within the existing "lay of the land" and avoid the need for excessive cuts or fills.
- Minimize disruption to tree masses (if possible).
- Reroute proposed streets to avoid significant lakes and disruption to streams.
- Avoid directing proposed streets and roadways through historic structures.

IV. STUDY METHODOLOGY

The following methodology was utilized to guide the preparation of this study.

A. Base Map Preparation:

- Existing topographic mapping was acquired from the Metropolitan St. Louis Sewer District (MSD). MSD has recently prepared topographic maps showing four foot contours of a large part of the City of Wildwood area. These topographical maps were prepared from aerial photographs. MSD also provided rectified aerial photographs for CDG's use. All of the information was provided in a digital format for use in a CADD system. Unfortunately, the existing data from MSD did not cover the entire study area. The limits of the photography were up to a line located approximately 1200 feet west of Highway 109.
- Additional topographic information was acquired from the United States Geological Survey (USGS). Seven and a half (7½) minute quadrangle maps were obtained from this agency in a digital format.
- The St. Louis County Department of Planning provided copies of their planimetric maps (rights-of-way and property lines) for this study area. This information was also provided in a digital format.
- A base map of the study area was then prepared. The base map includes contours, existing buildings, tree masses, water features such as lakes, ponds and streams, existing road ways, property and right-of-way lines. Data provided by MSD and USGS was based on a common frame of reference, in particular the 1983 State Coordinate System, eastern zone. The reconciliation of these two sources of data was easily accomplished. The planimetric map that illustrates the existing property and rights-of-way lines was compiled by St. Louis County Department of Planning based on existing assessor plats and notes and recorded survey plat information. This source of data should not be considered as a property survey document. It is a tool to be used for planning purposes only. The planimetric maps are roughly referenced to the Missouri 1927 State Plane Coordinate System. This source of information was reconciled to the base map by visually aligning property and right-of-way lines with center lines of roadways, fence lines, and building structures that could be clearly seen on the aerial photography. It is surmised that the accuracy of the placement of property and right-of-way lines was approximately ± 5.0 feet.

B. Review and Establishment of Street Types

- The Master Plan establish street types. This involved the defining of rights-of-way, street and sidewalk widths. This information was reviewed in detailed by the Town Center Committee and CDG. Typical sections were developed as a tool for studying the proposed street alignments, both horizontally and vertically. Minimum and maximum street profile grades were reviewed and established.

C. Zoning Code Review

- The proposed zoning code was then reviewed. The code was reviewed in order to establish a minimum and maximum lot size and the corresponding city blocks that must be established.

D. Master Plan Street Grid Review and Reconciliation

- The Master Plan provided a proposed street grid (see page 8 of the Master Plan Study Revision, dated November 28, 1997). This 11 in. by 17-inch drawing was scanned into CDG's CADD system. The scanned image was then enlarged and made into an overlay for use with the base map. The scanned overlay was roughly aligned with the base map. The street grid alignment was then adjusted to conform with the existing streets. Streets and roadways were eliminated or realigned in accordance with the study philosophy and to comply with proposed zoning codes.

E. Proposed Street Profiles

- Proposed street profiles for individuals roads were developed based on the established design criteria for street widths and right-of-way widths, and minimum and maximum street profile grades. Road alignments were adjusted or eliminated to comply with the study philosophy.

F. Curb Rounding Criteria

- Curb rounding criteria was then established. A vehicle turning radius study was performed. This study was performed in order to determine the curb rounding radius required for street intersections. The turning movements of emergency vehicles, school buses and delivery trucks was also analyzed. Rounding standards were then established for street intersections.

G. Cadastral Control Drawings

- Final cadastral control drawings were then prepared. These plats are for planning purposes only. The location of city streets and blocks have been referenced to the Missouri 1983 State Coordinate System Eastern Zone (US Survey Feet).

V. DESIGN CRITERIA

The following design criteria has been established.

A. Vertical Curves

- Maximum longitude grade is 9%, minimum grade is 1%. Design control for vertical curves is to be in accordance with the St. Louis County Department of Highway and Traffic standards (In regard to site distances).

B. Street Widths and Design Speeds

The following table indicates the modified proposed street widths and design speeds.

Street Description	Row Width (FT)	Lane Width (FT)	Sidewalk Width (FT)	Parking Width (FT)	Parking Type	Design Speed (MPH)	Comments
Main Street	104	12.5	8	21	60 degree, 9-foot wide parking stall	15	16 ft. median with curbs and bike lane
Neighborhood Ave.	80	11	8	None	N/A	25	15 ft. median with curbs and bike lane
Crestview Ave.	80	11	8	None	N/A	15	15 ft. median with curbs and bike lane
Street	54	11	8	8	Parallel Parking	15	Curb and gutter
Street (one-way)	27	11	8	None	N/A	15	Curb and gutter
Road	40	9	6	None	N/A	15	No curb and gutter; two roads have no sidewalk
Lane	24	16	None	None	N/A	10	One-way traffic behind lots
Old Manchester Road	60	11	12	7	Parallel parking between trees	30	Status: on hold

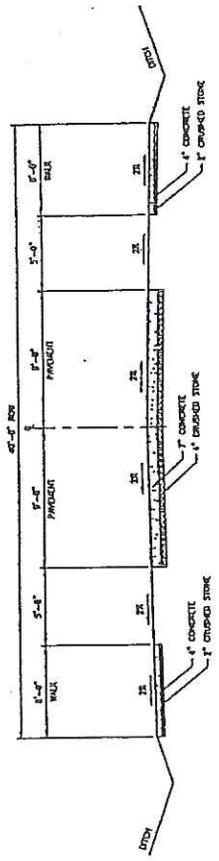
Exhibit B illustrates the proposed typical sections for the roads, streets and avenues for the Town Center area.

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BY	J. W. B.
CHECKED BY	J. W. B.
APP'D	
DATE	

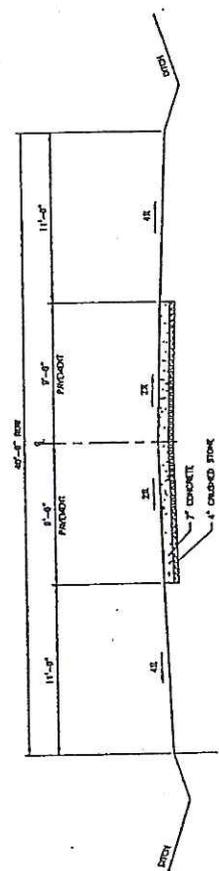


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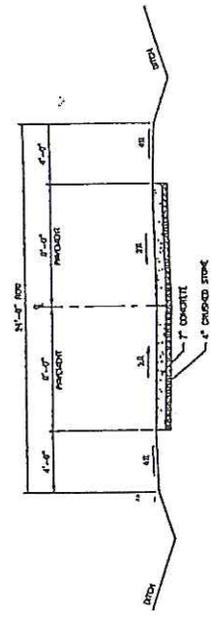
EXHIBIT B



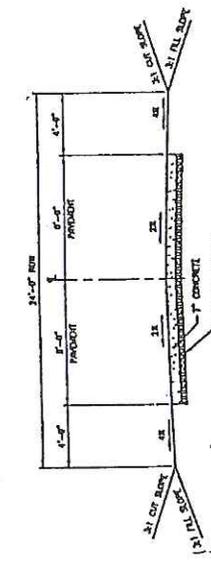
TYPICAL SECTION ROAD - WITH SIDEWALKS
SCALE 1/4" = 1'-0"



TYPICAL SECTION ROAD - NO SIDEWALKS
SCALE 1/4" = 1'-0"



TYPICAL SECTION LANE - OPTIONAL
SCALE 1/4" = 1'-0"



TYPICAL SECTION LANE
SCALE 1/4" = 1'-0"

C. Vehicular Turning Study

- A study was performed to determine the size of the curb roundings to be constructed within the Town Center area. The following vehicles were analyzed:
 - Fire trucks (typically used by the local fire district)
 - Large school buses
 - City delivery trucks (medium size tractor trailer)
 - Large over-the-road tractor trailers (moving vans)

See Exhibit C for illustrations of truck turning movements.

- The results of the truck turning analysis indicate that fire trucks and school buses will be able to negotiate the anticipated turns in one turning movement.
- Small tractor trailer rigs (City delivery vehicles) with total length of less than 50' will be able to negotiate all anticipated turns in one turning movement.
- Large over- the-road tractor trailer rigs (typically used by moving companies) will not be able to negotiate all anticipated turns in one turning movement. It will be necessary for these vehicles to "back down" and make the turn in three movements.
- The following Exhibit D illustrates the proposed intersection configuration and shows the proposed curb rounding radii.


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DATE OF	DATE OF	DATE	DATE
ISSUE	REVISION	REVISION	REVISION

TOWN CENTER
 CITY OF WILDWOOD, MO
 TRUCK TURNING STUDY 2/8
 ASASHTO WB-40 TRUCK

PROJECT NO. 97002
 DRAWING NO.

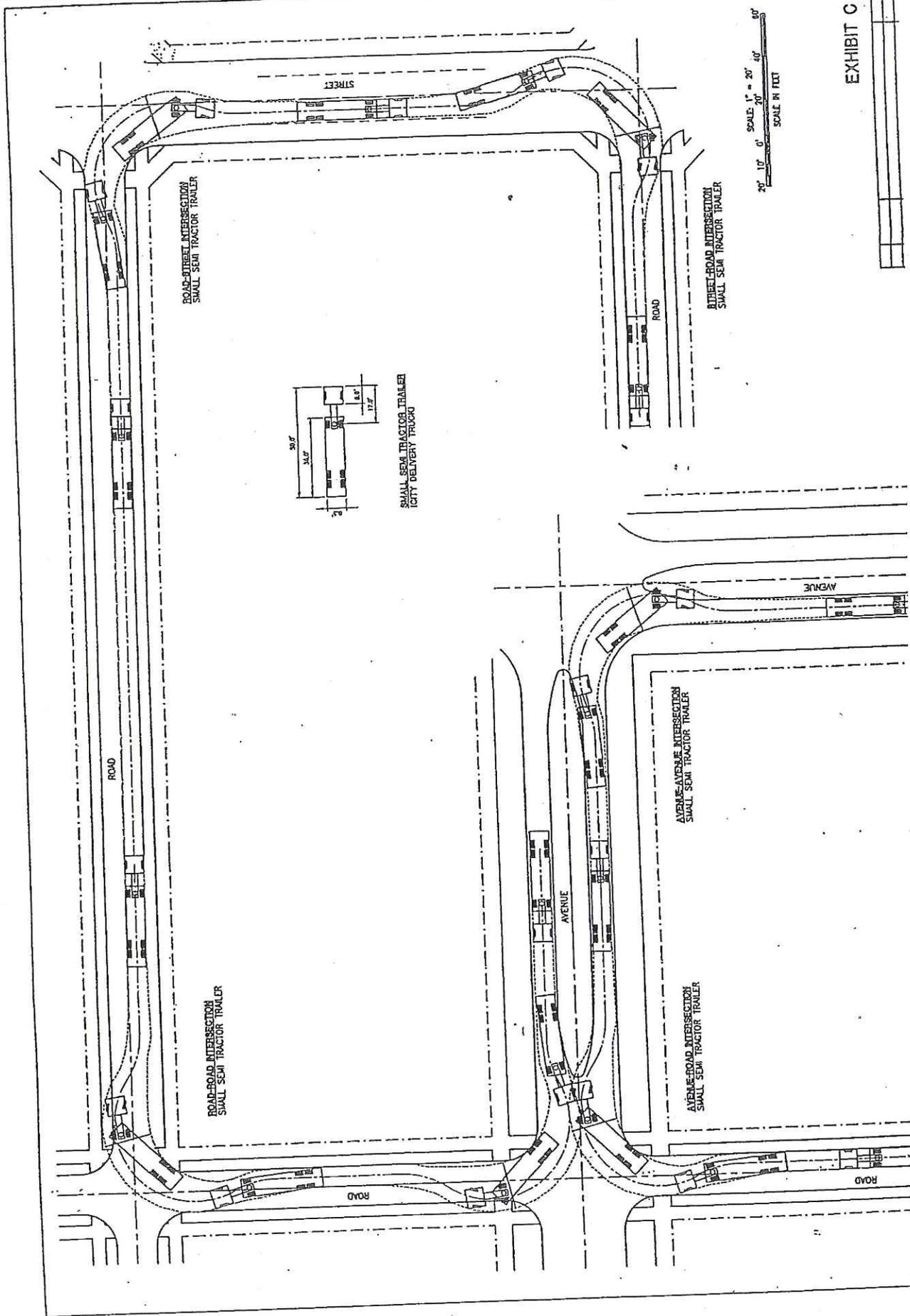
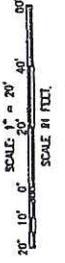


EXHIBIT C

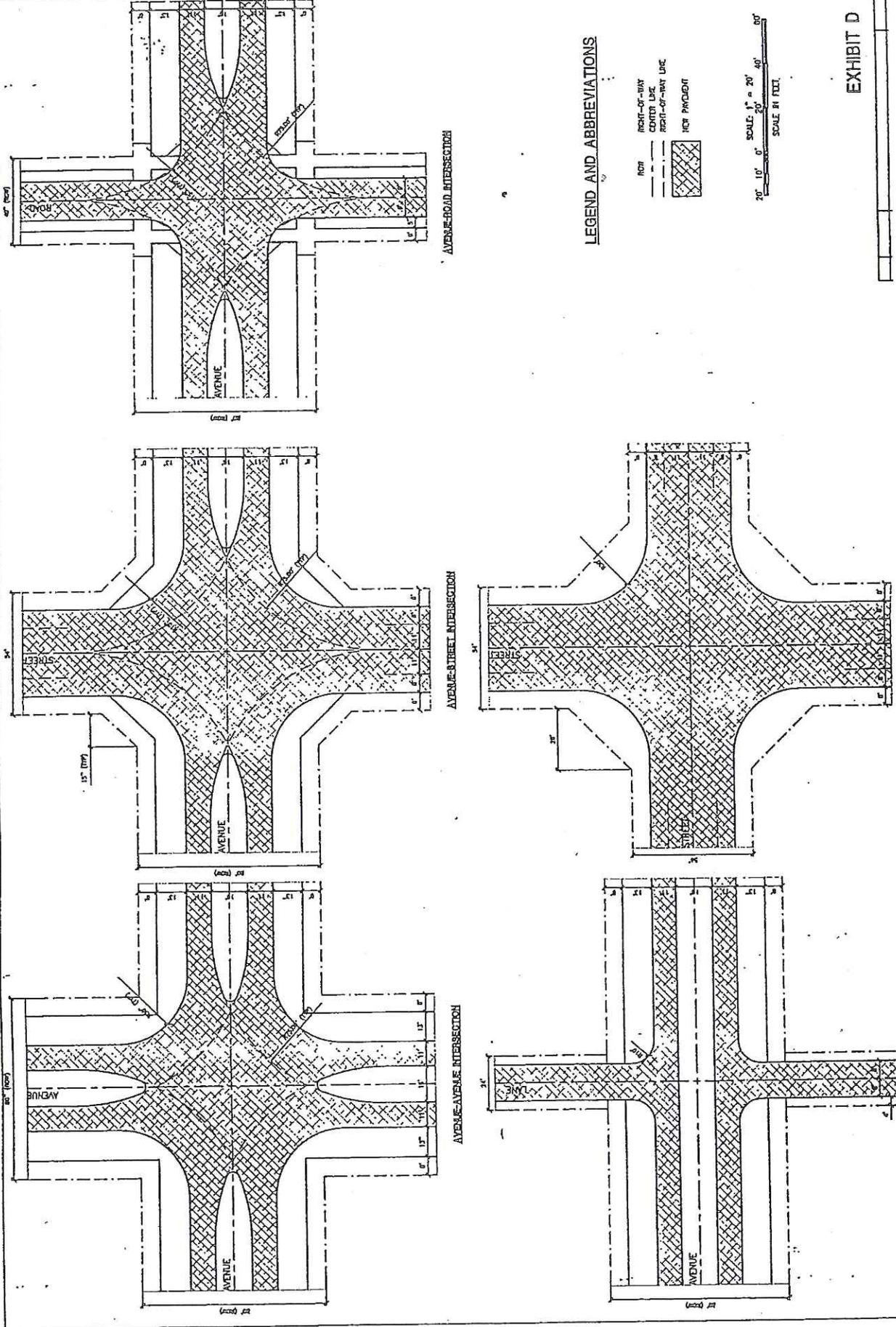
DESIGNED BY	DATE
DRAWN BY	DATE
CHECKED BY	DATE
SCALE	DATE
NO. NOTED	DATE
BY	DATE
BY	DATE



CDG Engineers
Architects Planners, Inc.
11111 Parkwood Drive, Suite 100, St. Louis, MO 63143
Tel: 314-731-7779 Fax: 314-731-5975



- LEGEND AND ABBREVIATIONS**
- NOT
 - RIGHT-OF-WAY
 - CENTER LINE
 - RIGHT-OF-WAY LINE
 - NOT PROPORTION



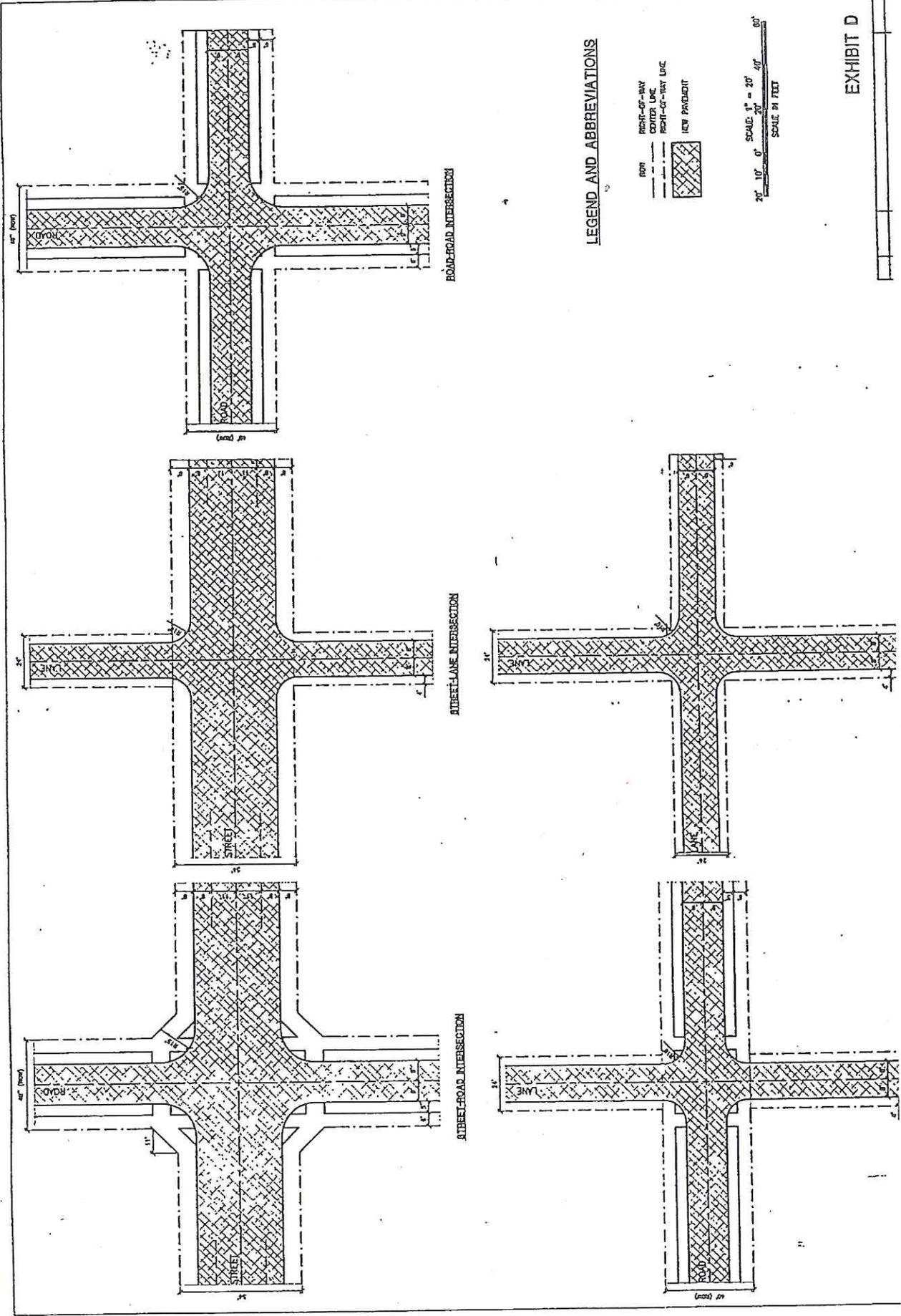
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 Architects Planners, Inc.
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DESIGNED BY	DATE
CHECKED BY	DATE
IN CHARGE	DATE
SCALE	DATE

TOWN CENTER
 CITY OF WILWOOD, MD
 INTERSECTION GEOMETRICS
 RADA AND LANE WIDTHS 2/2

PROJECT NO.
 97002



LEGEND AND ABBREVIATIONS

- RIGHT-OF-WAY
- CENTER LINE
- RIGHT-OF-WAY LINE
- [Hatched Box] NEW PAVEMENT

SCALE 1" = 20'
 20' 10' 0" SCALE IN FEET

EXHIBIT D

VI. Drawing List

The following drawings have been prepared for the City's use.

- C001 Proposed Street Grid
- C003 Existing conditions
- C005 Existing property lines (acetate overlay)
- C007 Proposed Street Grid and Right-of-way (acetate overlay)
- C010 Cadastral Control Street Grid and Intersection Location
- C011 Cadastral Control City Blocks and Areas

All of the above referenced drawings have also been transmitted to the city in digital format.

VII. OBSERVATIONS AND FINDINGS

The following is some of CDG's observations and findings concerning the final configuration of the street grid. It is important to note that some of these observations and findings have now been incorporated into more current revisions of the Town Center Master Plan. See enclosed Exhibit E proposed ponds and parks for reference.

- A review of the zoning codes, in particular those concerning minimum lot size, indicated that the lot sizes are based on two dimensions that basically conform to a rectangle. For instance, the commercial work place zone refers to a minimum lot width of 72 feet and a minimum lot depth of 150 feet. It is recommended that the minimum lot depth be reduced to 144 feet. (The lot width of 72 feet & depth of 144 feet have a common denominator of 12 feet). This will make development of a city block on all four sides much easier to accomplish. This is also true of the neighborhood center and general zoning district. The minimum lot depth is recommended to be changed from 100 feet to 96 feet. It is also noted that the theory of making rectangular city blocks with exact number of lots conforming to a rigid lot width will not always work. One of the study philosophies was to utilize the existing rights-of-way in the area such as Lindy Lane and Niere Acres Road. In order to incorporate these existing rights-of-way, it will be necessary to re-think the minimum and maximum lot sizes, possibly to include a minimum area requirement.
- The development of the area north of Highway 100 and just west of Taylor Road will not conform to the proposed master plan layout. In order to construct the roads as portrayed in the master plan, it would be necessary to drastically alter the landscape in this area. Several different design alternatives were considered for this area. The final design configuration incorporates the extension of the Pond Grover Loop Road connecting into Taylor Avenue North.
- The proposed north-south street between Lindy Drive and Old Grover Estates was eliminated. It was determined that there was not sufficient land mass in this area to warrant an additional street. It is noted that this area is now designated as park land.
- The design speed for Neighborhood Avenue has been reduced from an anticipated speed of 25 miles per hour to 15 miles per hour. This change was made in order to accommodate the proposed geometric configuration of islands. It is noted that this may present some problems with enforcement of vehicular speed limits.
- The proposed width of Main Street has been increased from a proposed right-of-way width of 85 feet to 104 feet. This is to allow for 60° angle parking. The Master Plan indicates that Main Street should incorporate angle parking, however, the parking widths stated in the Master Plan will not meet local parking standards.
- The north/south road originally planned in City Block 8 (see cadastral control drawing) was eliminated due to the steepness of the proposed grade (in excess of 9% longitudinal slope).

- Town Center Road, near City Block 57, 58 and 59, was re-aligned to the north in order to avoid disturbing the existing east/west creek.
- In Block 53, the proposed east-west lane was eliminated. This City block encloses the Hayes' Lake.
- In Block 64, Crab Apple Road and Flowering Dogwood Road were realigned in order to avoid disturbing the existing historic structure located in this area (the old school house).
- The proposed north/south road located on the east edge of City Block 37 has been eliminated.
- Eatherton Street West was realigned between City Blocks 1-8 in order to align with an existing easement located through the Amoco Gas Station property located at the southeast corners of Highway 109 and 100.
- The proposed extension of Lindy Drive North was terminated at Niere Acres Road West.
- The curb roundings for street intersections, as illustrated in this report, represent the bare minimum required in order to allow school buses and emergency vehicle access. This is in keeping with the Town Center Committee's instructions.

PROJECT NO. 87002
 DRAWING NO.

TOWN CENTER
 CITY OF WILDWOOD, MO
 PROPOSED ROADS & PARKS
 EXIST. BLDGS, TREES, WATER

DATE: 02/20/87
 DRAWN BY: JAVO
 CHECKED BY: JAVO
 APPROVED BY: JAVO



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EXHIBIT E

SCALE: 1" = 300'
 0' 300' 600' 900'
 SCALE IN FEET

