DELAWARE CITY COUNCIL RETREAT
SATURDAY, FEBRUARY 10, 2018
OHIO WESLEYAN UNIVERSITY
40 ROWLAND AVENUE
DELAWARE
HAMILTON-WILLIAMS CAMPUS CENTER, ROOM 304
9:00 A.M. – 2:00 P.M.

AGENDA

1. Introductions *

2. 2018 Comprehensive Plan: Understanding the Process & Getting Started
   Dave Efland, Planning and Community Development Director
   Jamie Green, President, Planning NEXT

3. Transportation Public Education Outreach and Research
   Marie Keister, President, MurphyEpson

4. Impact Fee Study Update
   Carson Bise, President, TischlerBise Inc.

5. Wrap-up/Adjournment

* OWU President Rock Jones may stop by to say a few words

EST 1808
CITY OF
DELAWARE
OHIO

MEMORANDUM

TO: City Council, Directors
FROM: R. Thomas Homan, ICMA-CM
DATE: 02/06/18
RE: City Council Retreat/Agenda

Attached is the agenda for Saturday's retreat, which is scheduled to begin at 9 a.m. What follows are my brief comments on each item:

1. **Comprehensive Plan Update:**

   Jamie Green, President of Planning Next, the firm hired to undertake the comprehensive plan update, will provide Council with an overview of the process his team (and our staff) will be undertaking over the course of the next 12-18 months for this project. An outline of his presentation is enclosed.

2. **Transportation Education Outreach and Research**

   This item, which will be led by Marie Keister of MURPHYepson, is intended to provide Council with and overview of the work her firm will be involved in over the next several months. As Council will recall, the City retained MURPHYepson towards the end of 2017 to assist the City with this effort.
   In addition, she will be discussing how she will be seeking input from the community about why the City's Moving Delaware Forward initiative did not succeed. An outline of her presentation is included.

3. **Impact Fee Update**

   The third item will be devoted to a presentation on the City's Impact Fee Update, work that was completed in 2017. Carson Bise, President of TischlerBise, Inc., will be presenting, and will work from the enclosed report, which includes an executive summary. I would ask Council to focus on the executive summary to prepare for

Saturday's presentation. The background information, which begins on page 6, supports the recommendation and makes up the balance of the report.

Ultimately, Council will need to consider the report's recommendations on changes to the existing fees. Saturday's discussion is intended to provide Council with an overview of what is being recommended and will allow time to discuss next steps, including getting input from residents and the development community.

*** One of the initial items that was considered for Saturday's retreat, was the subject of Economic Development. Given the length of time required for these other items, ED will be taken up separately at a future work session.

Initiating the Comprehensive Plan Update

City Council Retreat

February 10, 2018

EST 1808
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Welcome

Dave Efland, AICP

Director of Planning & Community Development

Background

Jamie Greene, AIA, FAICP
Sarah Kelly, AICP
planning NEXT

AGENDA

1. Welcome
2. Background
3. Project Approach
4. Discussion
5. Next Steps

WHAT IS A COMPREHENSIVE PLAN?

A strategic guide that expresses the values and aspirations of a community. It is also:

- A long-range vision for development, housing, environment, economic development, transportation, and related topics;
- A tool to manage change;
- A guide for local decision-making that is implemented over time;
- Not legally binding, but it serves as the foundation for a City's regulations; and
- A marketing tool that articulates community's vision and how the private sector can support that vision.

ABOUT DELAWARE'S COMPREHENSIVE PLAN

The comprehensive plan will:

- Engage the community in an inclusive process that yields an authentic community-driven vision for the future;
- Recommend projects, policies and programs to keep Delaware a desirable place in which to live, work, and invest; and
- Respect previous planning efforts (data, policy, ownership).

WHY UPDATE THE PLAN?

1. Respond to current development trends and growth pressures
2. Incorporate updated information
3. Address new planning issues
4. Integrate new technologies and best practices

ROLES

Steering Committee
process and substance

Stakeholders
targeted input

Public
general input
and feedback

Staff
project management,
local knowledge

Elected officials
advise, adopt

Consultants
facilitate, technical
expertise

STEERING COMMITTEE ROLE

- Officially **represent** the community in the planning process.
- Provide **guidance** and direction to the staff and consultants.
- Act as **spokespersons** for the planning effort.
- **Support** the process and its events in various ways.

OUR APPROACH

WORK PROGRAM

1. Preparation
2. Public Engagement
3. Analysis
4. Plan Development

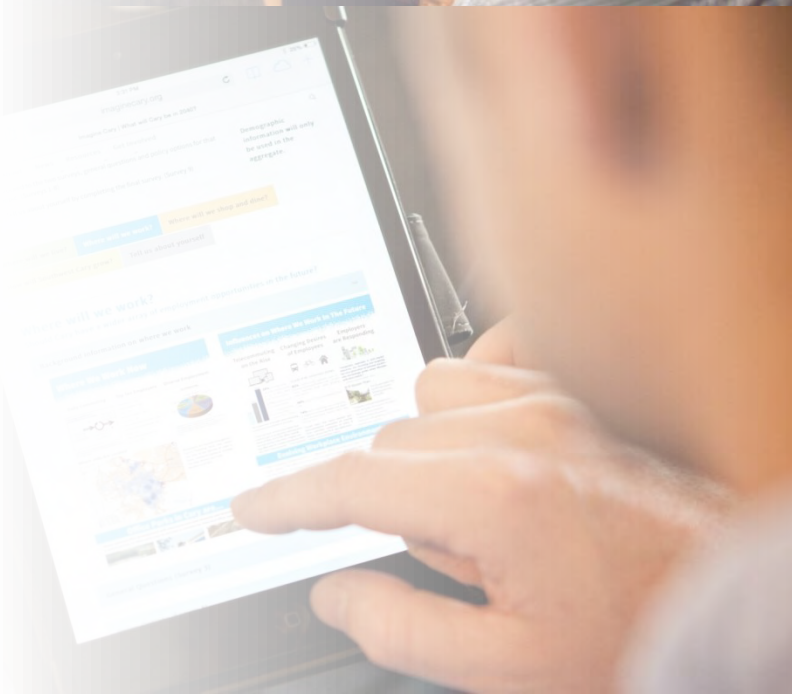
1. PREPARATION

- **Getting Oriented**
- **Steering Committee Formation**
- **Public Engagement Strategy**
  - *Branding (name, logo, tagline, key messages)*
  - *Communications and Outreach Plan*
  - *Stakeholder Meetings / Interviews*

2. PUBLIC ENGAGEMENT

Public Participation

- *Generative Workshops*
- *Analytical Workshops*
- *Online Engagement*



ENGAGEMENT

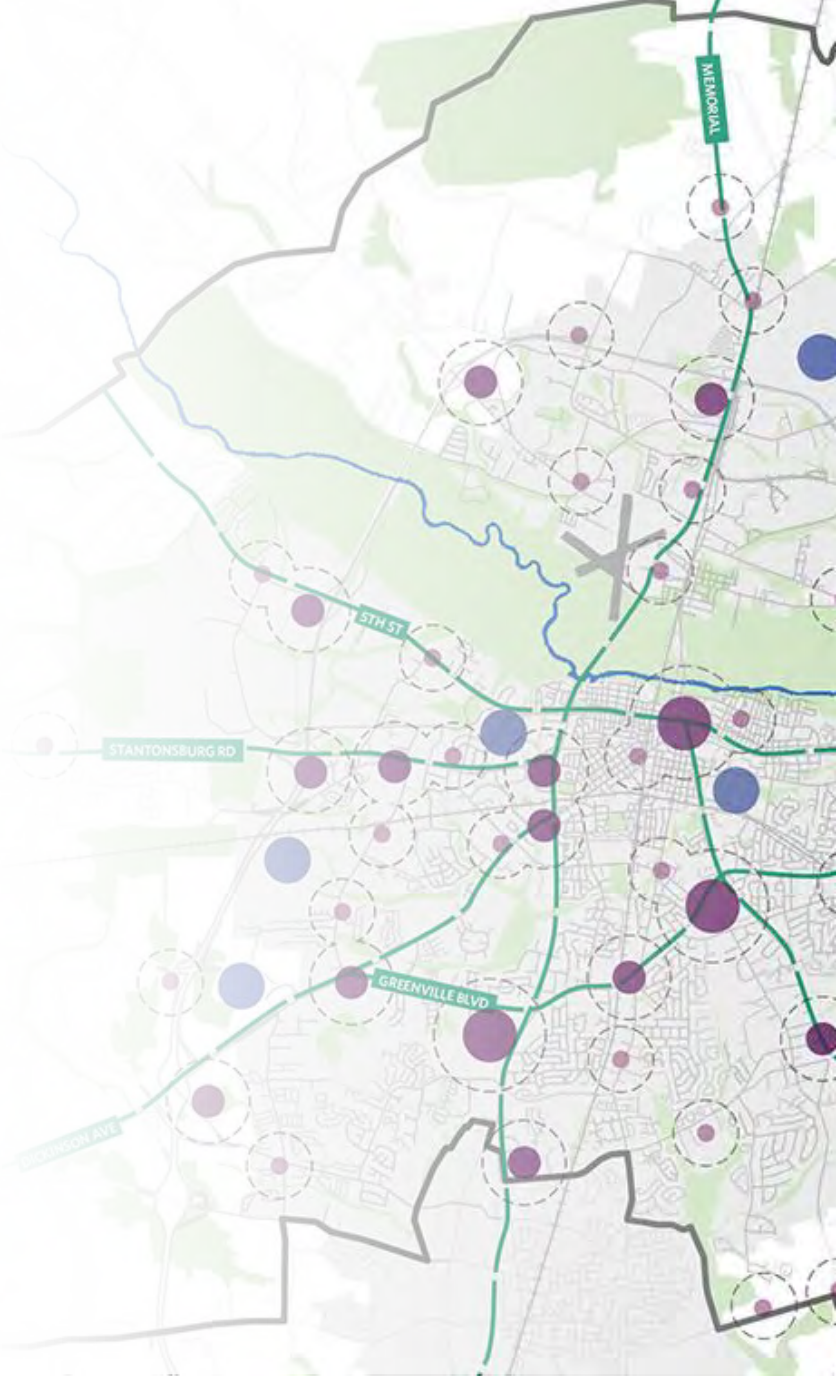
Our shared goal…

Anybody who cares about the future of Delaware should have a <u>choice</u> to participate.

3. ANALYSIS

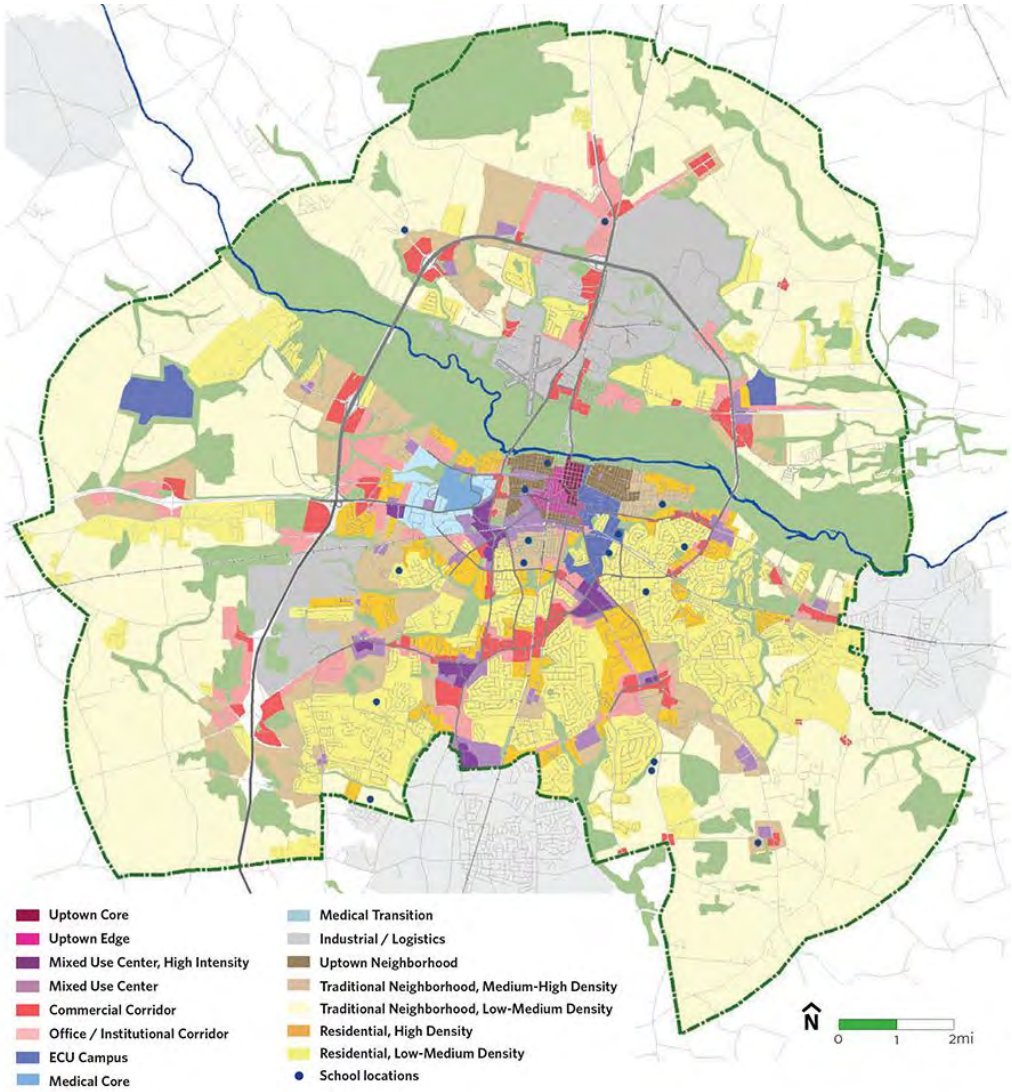
Focuses on existing conditions, trends and opportunities

Informed by the first round of public engagement.



OUR APPROACH TO…

LAND USE



OUR APPROACH TO…

ECONOMICS

ANALYSIS AND STRATEGIC RECOMMENDATIONS MAY INCLUDE:

1. **Baseline economics**
   - *Demographic profile*
2. **Real estate market with potential focus on:**
   - *Housing*
   - *Industrial*
   - *Downtown (retail)* ***and/or***
   - *Corridors*

4. PLAN DEVELOPMENT

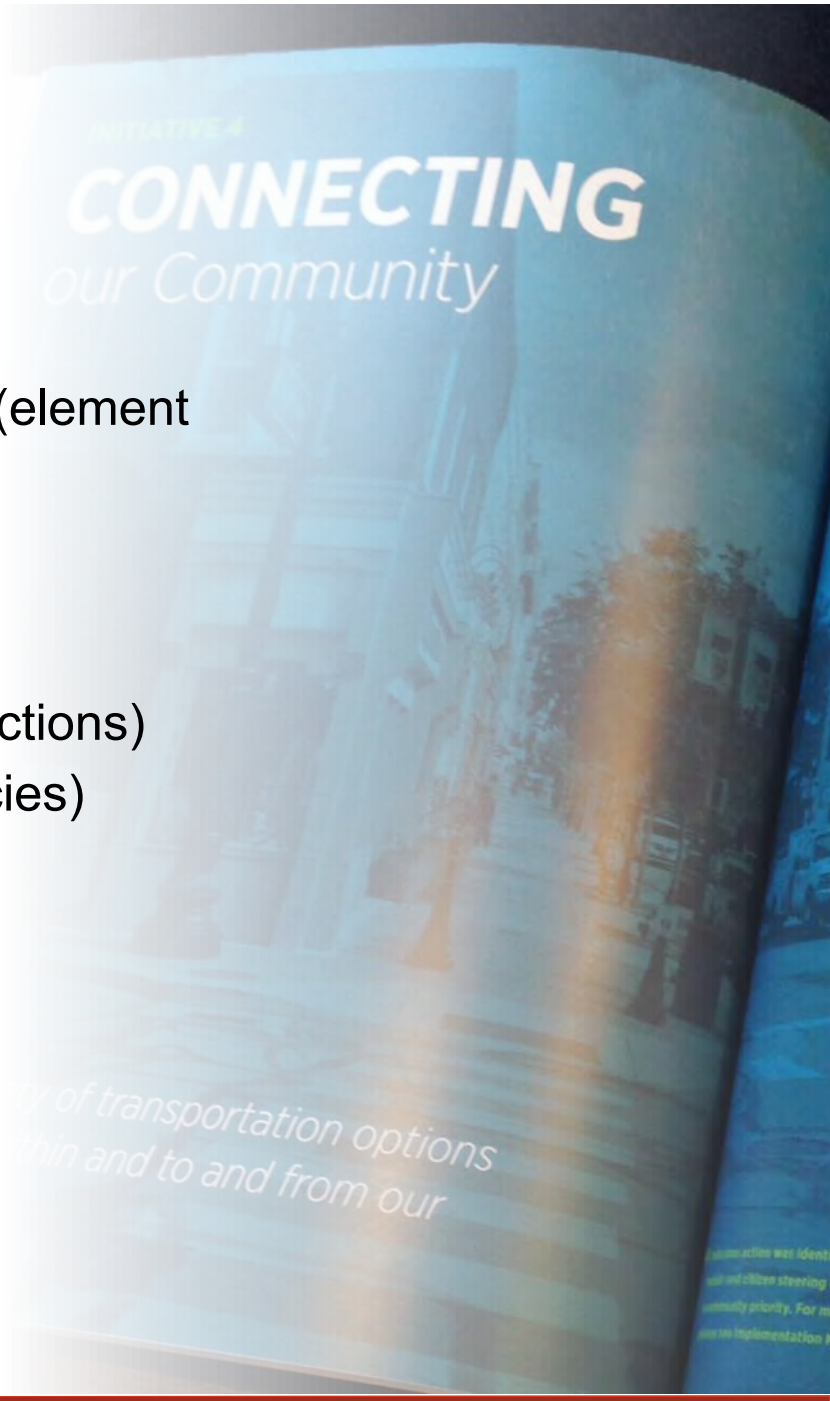
1. **Evaluate options for plan structure** (element vs theme)

2. **Policy hierarchy**
   - **Goal** (desired outcome)
   - **Objectives** (themes to organize actions)
   - **Actions** (projects, programs, policies)

3. **Prepare draft of plan** (including implementation plan)

4. **Review, refine**

5. **Prepare final plan**

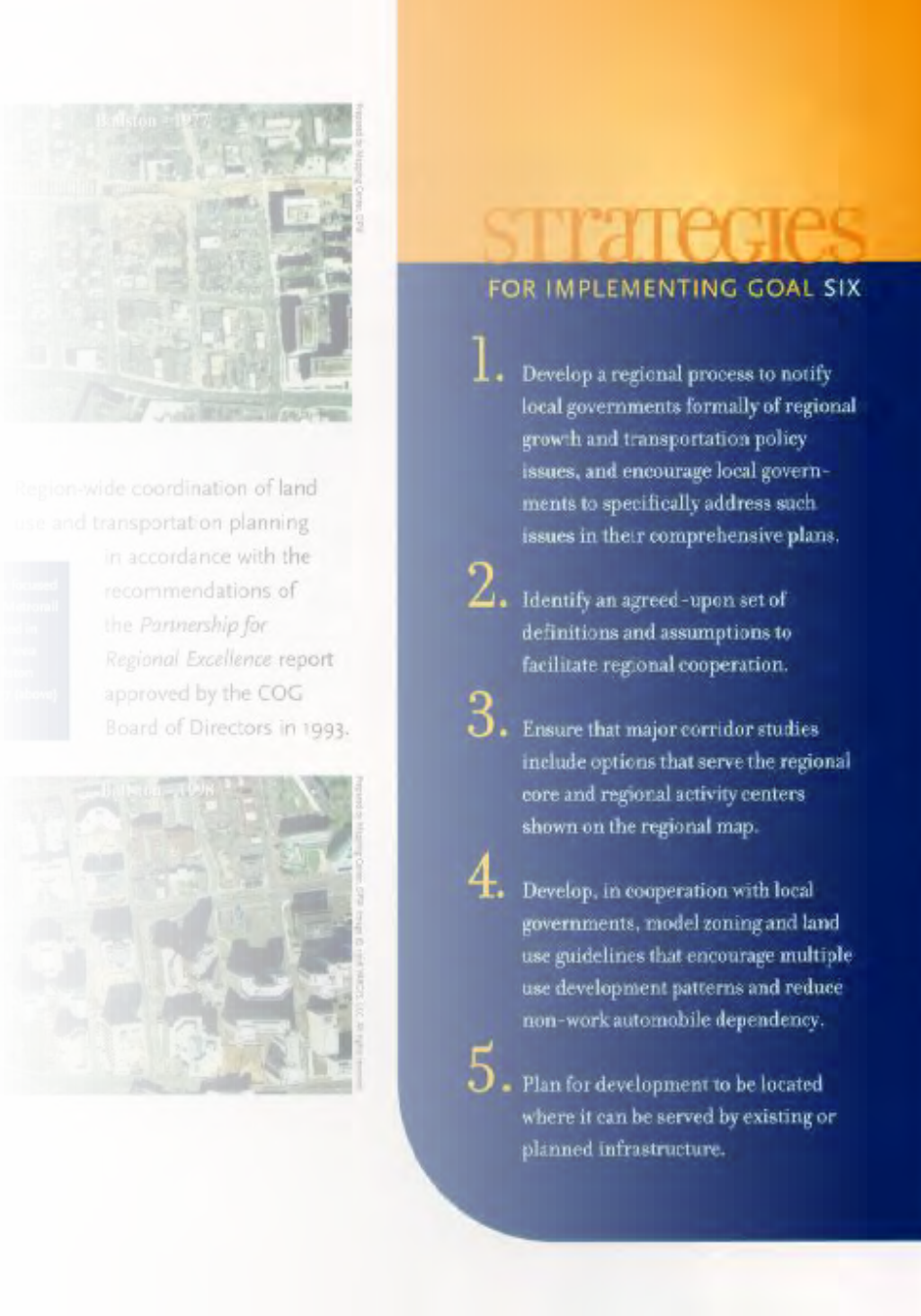


OUR APPROACH TO…

IMPLEMENTATION PLAN

For each action:

- *Timing*
- *Responsibilities*
- *Indicators*



NEXT STEPS

- Create Steering Committee
- Conduct previous plan “audit”
- Prepare outreach and communications plan

Discussion

Thank you!

CITY OF DELAWARE – TRANSPORTATION PUBLIC EDUCATION, OUTREACH & RESEARCH
City Council Retreat
February 10, 2018

ADVERTISING • PUBLIC RELATIONS
MURPHYepson

1. **Welcome and Introductions**

2. **Why You Hired MurphyEpson/Our Tasks**

   a. To develop a messaging and communication framework to explain City of Delaware's efforts to improve transportation, and why these investments are so important. Immediate focus is on the E. William widening, the Point Improvements and E. Central projects, but ultimately it will frame engagement efforts related to transportation and any strategies that may emerge as a result.

   b. To seek input from community leaders, officials and residents on the transportation challenges facing the City of Delaware, and to get their thoughts on why the Moving Delaware Forward initiative did not succeed.

   c. Questions?

3. **How to Explain This Effort**

4. **Who We Will Engage/What Do You Want to Know?**
   a. Who we will engage
      - Key influencer interviews (up to 20 – may be grouped) – *who do you suggest?*
      - Neighborhood/other targeted small group conversations (up to 6) – *who do you suggest?*
      - Online survey – *please help us spread the word when it is ready to launch*

   b. What do you want to know?
   c. What are you already hearing that we might probe further?
   d. Research findings memo/presentation will follow

5. **Schedule and Next Steps**

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Impact Fee Study

Prepared for:

City of Delaware, Ohio

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February 6, 2018

TischlerBise

FISCAL | ECONOMIC | PLANNING

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EXECUTIVE SUMMARY

The City of Delaware retained TischlerBise to prepare this study to update and expand its impact fee schedule. Through interviews and discussions with city staff, TischlerBise developed the proposed impact fees discussed in this study. Specifically, impact fees have been calculated for the following infrastructure categories:

- Parks and Recreation (updated impact fee);
- Police (updated impact fee);
- Fire and Emergency Medical Services (updated impact fee);
- Municipal Buildings and Equipment (updated impact fee);
- Transportation (new impact fee that may be assessed after policy issues are vetted).

Impact fees are collected from new construction at the time a building permit is issued and used to construct system improvements needed to accommodate new development. An impact fee represents new growth's proportionate share of capital facility needs. Impact fees do have limitations, and should not be regarded as the total solution for infrastructure funding. Rather, they are one component of a comprehensive funding strategy to ensure provision of adequate public facilities. Impact fees may only be used for capital improvements or debt service for growth-related infrastructure. In contrast to general taxes, impact fees may not be used for operations, maintenance, replacement of infrastructure, or correcting existing deficiencies.

TischlerBise evaluated alternative methodologies and documented appropriate demand indicators, by type of development. Specific capital costs have been identified using local data and current dollars. The formula used to calculate each impact fee is diagrammed in a flow chart at the beginning of each fee section. Also, the report includes summary tables indicating the specific factors used to derive each type of impact fee. These factors are also referred to as Level-Of-Service (LOS) standards.

The purpose of this study is to update and expand the current impact fee for the City of Delaware. It is the intent of the City of Delaware to impose impact fees to fund expenditures on capital facilities needed to serve new development. The proposed fees will be legislatively adopted at a level no greater than necessary to defray impacts directly related to and generally applicable to a broad class of property.

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Proposed Changes

Current residential impact fees are assessed per housing unit for single-family units (detached), per housing unit for Townhouse/Duplex, and per unit for Other Residential. For residential development, proposed fees are assessed per housing unit. Shown in Figure 1 below, proposed residential fees combine "single family detached" and "single family attached" from the current fee schedule into one "single family" category. Proposed to combine the "Townhouse/Duplex" and "Other Residential" into "All Other Units". This was done to include "single family attached" and to simplify the administration of residential fees.

For nonresidential development, current fees are assessed by square foot of floor area, but many development types are included in the fee schedule. The proposed fee schedule for nonresidential development is designed to provide a reasonable impact fee determination for broad **nonresidential development types—commercial, office, and industrial**—to simplify the administration of nonresidential fees. Figure 1 below includes a summary of current and proposed development types.

Figure 1: Proposed Changes by Development Type

Residential (per unit)

Current	*Proposed*
Single Family Detached	**Single Family**
	Detached + Attached
Townhouse/Duplex	**All Other Units**
All Other Residential	

Nonresidential (per square floor of development)

Current	*Proposed*
Commercial	**Commercial**
Com / Shop Ctr 50,000 SF or less	
Com / Shop Ctr 50,001-100,000 SF	
Com / Shop Ctr 100,001-200,000 SF	
Com / Shop Ctr over 200,000 SF	
Office	**Office**
Office / Inst 25,000 SF or less	
Office / Inst 25,001-50,000 SF	
Office / Inst 50,001-100,000 SF	
Office / Inst over 100,000 SF	
Business Park	
Industrial	**Industrial**
Light Industrial	
Manufacturing	
Warehousing	

Proposed Fee Methods and Cost Components

Figure 2 summarizes the methods and cost components used for each infrastructure category in Delaware's impact fee study. After consideration of input during work sessions and public hearings, the City Council may change the proposed impact fees by eliminating infrastructure types, cost components, and/or specific capital improvements. If changes are made during the adoption process, TischlerBise will update the fee study to be consistent with legislative decisions.

Figure 2: Proposed Fee Methods and Cost Components

Fee Category	Incremental Expansion	Plan-Based	Cost Recovery	Cost Allocation
Parks & Recreation	Community Parks, Community Park Improvements, Trails, Recreation Facilities	Trail Improvements	N/A	Population
Police	Facilities and Vehicles	N/A	N/A	Population and Nonresidential Vehicle Trips
Fire & Emergency Medical Services	Facilities and Vehicles	N/A	N/A	Population and Jobs
Municipal Buildings & Equipment	Facilities and Vehicles	N/A	N/A	Population and Jobs

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Proposed Impact Fees

Figure 3 summarizes proposed impact fees for new development in the City of Delaware. For residential development, proposed fees are assessed by type of housing unit. Shown in Figure 3, proposed fees for a single-family unit equal $3,849 – an increase of $1,442 compared to the current single-family detached fees. Proposed fees for an all other units equal $2,685 – an increase of $755 compared to the current fee.

The proposed fee schedule for nonresidential development is designed to provide a reasonable impact fee determination for broad **nonresidential development types – commercial, office, and industrial** – to simplify the administration of nonresidential fees. For unique development types, the City of Delaware may allow or require an independent impact fee determination. Proposed impact fees for commercial development equal $1,541 per 1,000 square feet of floor area, office fees total $774 per 1,000 square feet of floor area, and industrial development equal $345 per 1,000 square feet of floor area.

All costs in the impact fee calculations are given in current dollars with no assumed inflation rate. Necessary cost adjustments can be made as part of the recommended annual evaluation and update of impact fees. One approach is to adjust for inflation in construction costs by means of an index like the one published by Engineering News Record (ENR). This index can be applied against the calculated impact fees. If cost estimates change significantly, the fees should be recalculated.

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Figure 3: Proposed Impact fee Schedule

PROPOSED FEES	Parks & Recreation	Police	Fire/ EMS	Municipal Facilities & Equipment	Transportation	TOTAL
Residential (per unit)						
Single Family Unit	$2,376	$528	$687	$258	TBD	$3,849
All Other Units	$1,658	$368	$479	$180	TBD	$2,685
Nonresidential (per 1,000 square feet of gross floor area)						
Commercial	N/A	$725	$878	$348	TBD	$1,951
Office	N/A	$283	$352	$139	TBD	$774
Industrial	N/A	$98	$177	$70	TBD	$345

CURRENT FEES	Parks & Recreation	Police	Fire & EMS	Municipal Facilities & Equipment	Transportation	TOTAL
Residential (per unit)						
Single Family Unit	$1,420	$155	$344	$488	$0	$2,407
All Other Units	$1,176	$129	$285	$340	$0	$1,930
Nonresidential (per 1,000 square feet of gross floor area)						
Commercial	N/A	$512	$488	$541	$0	$1,541
Office	N/A	$451	$427	$472	$0	$1,350
Industrial	N/A	$394	$379	$419	$0	$1,192

CHANGE	Parks & Recreation	Police	Fire/ EMS	Municipal Facilities & Vehicles	Transportation	TOTAL
Residential (per unit)						
Single Family Unit	$956	$373	$343	($230)	$0	$1,442
All Other Units	$482	$239	$194	($160)	$0	$755
Nonresidential (per 1,000 square feet of gross floor area)						
Commercial	N/A	$213	$390	($193)	$0	$410
Office	N/A	($168)	($75)	($333)	$0	($576)
Industrial	N/A	($296)	($202)	($349)	$0	($847)

Background information on the legal principles and the assumptions behind the impact fee calculations are presented in the following Sections of this Report.

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SECTION 1: GENERAL LEGAL FRAMEWORK

Both state and federal courts have recognized the imposition of impact fees as a legitimate form of land use regulation, provided the fees meet standards intended to protect against regulatory takings. Land use regulations, development exactions, and impact fees are subject to the Fifth Amendment prohibition on taking of private property for public use without just compensation. To comply with the Fifth Amendment, development regulations must be shown to substantially advance a legitimate governmental interest. In the case of impact fees, that interest is in the protection of public health, safety, and welfare by ensuring development is not detrimental to the quality of essential public services. The means to this end are also important, requiring both procedural and substantive due process. The process followed to receive community input (i.e. stakeholder meetings, work sessions, and public hearings) provides opportunities for comments and refinements to the impact fees.

There is little federal case law specifically dealing with impact fees, although other rulings on other types of exactions (e.g., land dedication requirements) are relevant. In one of the most important exaction cases, the U. S. Supreme Court found that a government agency imposing exactions on development must demonstrate an "essential nexus" between the exaction and the interest being protected (see *Nollan v. California Coastal Commission,* 1987). In a more recent case (*Dolan v. City of Tigard, OR,* 1994), the Court ruled that an exaction also must be "roughly proportional" to the burden created by development. However, the *Dolan* decision appeared to set a higher standard of review for mandatory dedications of land than for monetary exactions such as impact fees.

There are three reasonable relationship requirements for impact fees that are closely related to "rational nexus" or "reasonable relationship" requirements enunciated by a number of state courts. Although the term "dual rational nexus" is often used to characterize the standard by which courts evaluate the validity of impact fees under the U.S. Constitution, we prefer a more rigorous formulation that recognizes three elements: "need," "benefit," and "proportionality." The dual rational nexus test explicitly addresses only the first two, although proportionality is reasonably implied, and was specifically mentioned by the U.S. Supreme Court in the *Dolan* case. Individual elements of the nexus standard are discussed further in the following paragraphs.

All new development in a community creates additional demands on some, or all, public facilities provided by local government. If the capacity of facilities is not increased to satisfy that additional demand, the quality or availability of public services for the entire community will deteriorate. Impact fees may be used to recover the cost of development-related facilities, but only to the extent that the need for facilities is a consequence of development that is subject to the fees. The *Nollan* decision reinforced the principle that development exactions may be used only to mitigate conditions created by the developments upon which they are imposed. That principle clearly applies to impact fees. In this study, the impact of development on infrastructure needs is analyzed in terms of quantifiable relationships between various types of development and the demand for specific capital facilities, based on applicable level-of-service standards.

The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case and is logically necessary to establish a proper nexus. Proportionality

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is established through the procedures used to identify development-related facility costs, and in the methods used to calculate impact fees for various types of facilities and categories of development. The demand for capital facilities is measured in terms of relevant and measurable attributes of development (e.g. a typical housing unit's average weekday vehicle trips).

A sufficient benefit relationship requires that impact fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. Impact fees must be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. However, nothing in the U.S. Constitution or the state enabling legislation requires that facilities funded with fee revenues be available *exclusively* to development paying the fees. In other words, benefit may extend to a general area including multiple real estate developments. Procedures for the earmarking and expenditure of fee revenues are discussed near the end of this study. All of these procedural as well as substantive issues are intended to ensure that new development benefits from the impact fees they are required to pay. The authority and procedures to implement impact fees is separate from and complementary to the authority to require improvements as part of subdivision or zoning review.

As documented in this report, the City of Delaware has complied with applicable legal precedents. Impact fees are proportionate and reasonably related to the capital improvement demands of new development, with the projects identified in this study reflected in the City of Delaware's Capital Improvements Plan (CIP) and Master Plans. Specific costs have been identified using local data and current dollars. With input from city staff, TischlerBise identified demand indicators for each type of infrastructure and calculated proportionate share factors to allocate costs by type of development. This report documents the formulas and input variables used to calculate the impact fees for each type of public facility. Impact fee methodologies also identify the extent to which new development is entitled to various types of credits to avoid potential double payment of growth-related capital costs.

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SECTION 2: CONCEPTUAL IMPACT FEE CALCULATION

In contrast to project-level improvements, impact fees fund growth-related infrastructure that will benefit multiple development projects, or the entire jurisdiction (referred to as system improvements). The first step is to determine an appropriate demand indicator for the particular type of infrastructure. The demand indicator measures the number of demand units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the increase in population can be estimated from the average number of persons per housing unit. The second step in the impact fee formula is to determine infrastructure units per demand unit, typically called level-of-service (LOS) standards. In keeping with the park example, a common LOS standard is park acreage per thousand people. The third step in the impact fee formula is the cost of various infrastructure units. To complete the park example, this part of the formula would establish the cost per acre for land acquisition and/or park improvements.

General Methodologies

There are three general methods for calculating impact fees. The choice of a particular method depends primarily on the timing of infrastructure construction (past, concurrent, or future) and service characteristics of the facility type being addressed. Each method has advantages and disadvantages in a particular situation, and can be used simultaneously for different cost components.

Reduced to its simplest terms, the process of calculating impact fees involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, though, the calculation of impact fees can become quite complicated because of the many variables involved in defining the relationship between development and the need for facilities within the designated service area. The following paragraphs discuss three basic methods for calculating impact fees and how those methods can be applied.

Cost Recovery Method (Past Improvements)

The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.

Incremental Expansion Method (Concurrent Improvements)

The incremental expansion method documents current level-of-service (LOS) standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.

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Plan-Based Method (Future Improvements)

The plan-based method allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a long-range facility plan and development potential is identified by a land use plan. There are two basic options for determining the cost per demand unit: 1) total cost of a public facility can be divided by total demand units (average cost), or 2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

Credits

Regardless of the methodology, a consideration of "credits" is integral to the development of a legally defensible impact fee methodology. There are two types of "credits" with specific characteristics, both of which should be addressed in impact fee studies and ordinances. To avoid double payment for capital facilities, the impact fee methodology includes a **principal payment credit** for capacity projects the City has funded using General Obligation (G.O.) bonds. Double payment occurs when an impact fee is paid for a capital facility that is also being paid for via annual property tax levy. The credit is deducted from the impact fee amount, thus avoiding double payment and reducing the fee amount.

The second type of credit is a **site-specific credit** for system improvements that have been included in the impact fee calculations. Project improvements normally required as part of the development approval process are not eligible for credits against impact fees. Specific policies and procedures related to site-specific credits for system improvements are addressed in the ordinance that establishes the City's impact fees. However, the general concept is that developers may be eligible for site-specific credits or reimbursements only if they provide system improvements that have been included in the impact fee calculation schedule. This type of credit is addressed in the administration and implementation of the impact fee program.

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SECTION 3: PARKS AND RECREATION

Parks and recreation impact fees address the need for citywide parks, open space, trails and recreation facilities. Neighborhood parks are excluded from impact fees but will continue to be addressed through Delaware's subdivision regulations. The City requires a dedication of 10% of the subdivision land area for public purposes, such as neighborhood parks, or payment of a fee in lieu of the land dedication. Neighborhood parks are considered to be a project level improvement with a limited benefit area, not a system improvement that provides benefit to all residents.

The need for land and improvements for citywide parks is determined by the incremental expansion approach. The City of Delaware also provides trails. The need for trails will be addressed through the incremental expansion methodology. The cost of trail improvements is calculated using the plan-based approach based on the City's share of trail projects in the Capital Improvement Program (CIP). Recreation facilities is derived using the incremental expansion methodology. The impact fee methodology for parks and recreation facilities is shown in Figure 4. Cost components are allocated 100% to residential development.

Figure 4: Park & Recreation Methodology Chart

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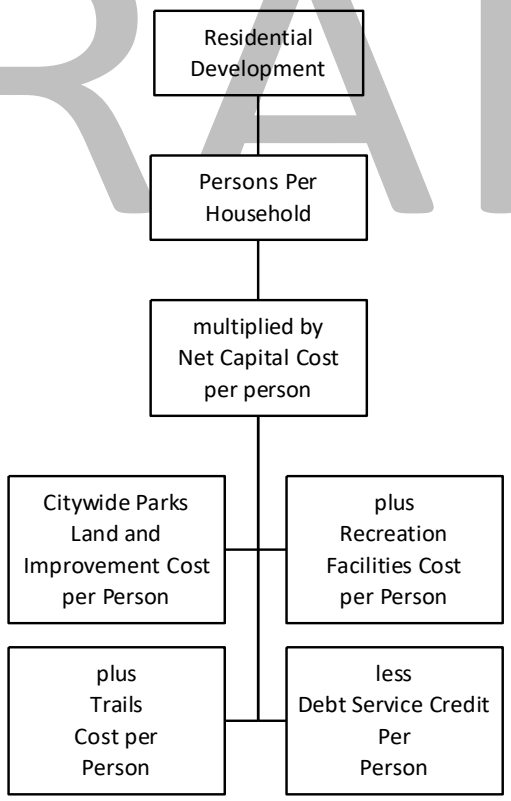

Citywide Parkland and Park Improvements

Existing Standards

The existing inventory of Citywide parkland and park improvements is shown in Figure 5. The City has an inventory of 189 acres of citywide parks. When the land inventory (189 acres) is compared to the existing population (38,862), the resulting level of service standard is 4.86 acres per 1,000 residents. The estimated cost to buy new park land is $55,000, which results in a total asset value of approximately $10.4 million. When the asset value ($10.4 million) is compared to the current population estimate (38,862), the resulting cost per demand unit is $267.48 per person.

The City currently has 210 individual park amenities, which includes such items as basketball courts and tennis courts, etc.). When the land inventory (210 improvements) is compared to the existing population (38,110), the resulting level of service standard is 5.40 improvements per 1,000 residents. The estimated replacement cost of park improvements is approximately $11.1 million. When the asset value of $11,110,750 is compared to the current population estimate (38,862), the resulting cost per demand unit is $285.90 per person.

Figure 5: Existing Standards for Citywide Parks

	Blue Limestone	Mingo	Smith	Veterans	Total Units	Unit Price	Total Cost
Acreage	18.0	61.0	50.0	60.0	**189.0**	$55,000	**$10,395,000**
Athletic Courts	2	8	6	0	**16.0**	$40,000	**$640,000**
Ballfields	0	6	3	0	**9.0**	$33,000	**$297,000**
Playgrounds	2	2	2	1	**7.0**	$40,000	**$280,000**
Rest Rooms	1	3	2	1	**7.0**	$111,000	**$777,000**
Swimming/Spray Park	0	1	0	1	**2.0**	$80,000	**$160,000**
Shelter	2	2	2	0	**6.0**	$50,000	**$300,000**
Skate Park	0	1	0	0	**1.0**	$460,000	**$460,000**
Boat Launch	0	2	0	0	**2.0**	$62,000	**$124,000**
Drinking Fountain	1	1	1	1	**4.0**	$3,500	**$14,000**
Soccer/Football	0	15	7	5	**27.0**	$2,250	**$60,750**
Improvements	18.0	61.0	50.0	0.0	**129.0**	$62,000	**$7,998,000**
					210.0	**TOTAL**	**$11,110,750**

Cost Analysis	
Population in 2017	38,862
Cost per Person for Parkland	$267.48
Cost per Person for Park Improvements	$285.90
Total Cost per Person	**$553.39**

Level of Service Standards	
LOS Park Acres per 1,000 persons	**4.86**
LOS Park Improvements per 1,000 Persons	**5.40**

Source: City of Delaware Parks & Recreation Department

Recreation Facilities

Figure 6 lists the City's inventory of recreation facilities. The current inventory totals 96,512 square feet. When compared to the current population (38,862), the current level of service is 2.48 square per person. According to information provided by the City, the replacement cost of these facilities totals $8.89 million, or $92.11 per square foot. When the cost per square foot ($92.11) is applied to the existing level of service standard (2.48 square feet per person), the resulting cost per demand unit is $228.76 per person.

Figure 6: Recreation Facilities

Facility	Square Footage	Replacement Cost	Cost Per Sq. Ft.
Outdoor Pool	68,500	$4,964,667	$72.48
Recreation Center	28,012	$3,925,393	$140.13
TOTAL	**96,512**	**$8,890,060**	**$92.11**

Level of Service Standard	
Population in 2017	38,862
LOS Square Feet/Person	**2.48**
Cost Analysis	
Cost per Square Foot	$92.11
Cost per Person	**$228.76**

Source: City of Delaware Parks & Recreation Department

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Trails

The City of Delaware currently has 25 miles of multi-use trails. As shown in Figure 7, when compared to the current population (38,862), the current level of service is .064 trail miles per 1,000 persons. According to information provided by the City, the cost per mile to construct a trail is $264,000. When the cost per trail mile ($264,000) is applied to the existing level of service standard (0.64 miles per 1,000 persons), the resulting cost per demand unit is $169.83 per person.

Figure 7: Trails

Trails	Surface Miles
Multi-Use Trails	25
TOTAL	25
Level of Service Standard	
Population in 2017	38,862
LOS Trails Miles per 1,000 Persons	**0.64**
Cost Analysis	
Cost per Surface Mile	$264,000
Total Replacement Cost	$6,600,000
Cost per Person	**$169.83**

Source: City of Delaware

Park Debt Credit

To avoid a potential "double payment" of capital costs due to future principal payments on existing debt for parks, a credit is applied to the impact fees. As shown in Figure 8 below, the City of Delaware has a remaining principal balance of $441,176. Annual principal payments per capita are discounted at a rate of 3.60% per year to yield a present value of future revenues of $7.81.

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Figure 8: Principal Payment Credit

Fiscal Year	*Debt Service Expansion*	*Population*	*Credit per Person*
2018	$29,412	39,262	$0.75
2019	$29,412	39,851	$0.74
2020	$29,412	40,449	$0.73
2021	$29,412	41,056	$0.72
2022	$29,412	41,672	$0.71
2023	$29,412	42,297	$0.70
2024	$29,412	42,931	$0.69
2025	$29,412	43,575	$0.67
2026	$29,412	44,229	$0.66
2027	$29,412	44,892	$0.66
2028	$29,412	45,565	$0.65
2029	$29,412	46,249	$0.64
2030	$29,412	46,943	$0.63
2031	$29,412	47,647	$0.62
2032	$29,412	48,361	$0.61
		Total	$10.15
	$441,176	**scount Rate**	3.6%
		Net Present Value	**$7.81**

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Projected Demand for Parks and Recreation Infrastructure

Ten-year growth projections for the City suggest Delaware will add 6,030 new residents. In order to maintain current levels of service for parks and recreation facilities, the City will need to make incremental investments. Shown in Figure 9 is the park acres, park improvements, recreation space and trails needed to maintain current levels of service and the total investment necessary based on 10-years of population growth. It is projected that new growth will generate demand for an additional 29 acres of park land, with an estimated cost of approximately $1.6 million. It is projected the City will need another 33 park improvements at a cost of approximately $1.58 million. Another 14,975 square feet of recreation space is projected, with an estimated cost of $1.37 million. Trail costs are projected at $1.02 million for an additional 4 miles.

Figure 9: Projected Demand for Parks and Recreation Infrastructure

	Parks and Recreation Needs to Maintain Current Standards				
	Cost/Unit	**$55,000**	**$48,608**	**$92.11**	**$264,000**
	LOS/Person	**0.0049**	**0.0054**	**2.48**	**0.0006**
Year	*Total Population*	*Park Acres*	*Park Improvements*	*Square Feet of Recreation Space*	*Miles of Trails*
Base	38,862	189	210	96,512	25
2018	39,262	191	212	97,506	25
2019	39,851	194	215	98,969	26
2020	40,449	197	219	100,453	26
2021	41,056	200	222	101,960	26
2022	41,672	203	225	103,489	27
2023	42,297	206	229	105,042	27
2024	42,931	209	232	106,617	28
2025	43,575	212	235	108,217	28
2026	44,229	215	239	109,840	28
2027	44,892	218	243	111,487	29
Ten-Year Increase =>	**6,030**	**29**	**33**	**14,975**	**4**
	Park Land Cost =>	**$1,612,949**			
		Park Improvement Cost =>	**$1,583,894**		
			Total Recreation Facility Cost =>	**$1,379,434**	
				Total Trail Cost =>	**$1,024,095**

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Maximum Supportable Parks and Recreation Impact Fee

Factors used to derive the Parks & Recreation Impact Fee are summarized in the top portion of Figure 10. Impact fees for parks and recreation are based on persons per household and are only implemented on residential development. LOS standards are based on current costs per person for citywide parks, recreation facilities, and trails, and planned trail improvement projects as discussed in the previous sections.

Figure 10 shows the schedule of maximum supportable impact fees for parks and recreation. The fees are calculated by multiplying the persons per housing unit by the capital cost per person for each component by type of housing, then adding together all of the components to derive the total Parks & Recreation Impact Fee. For example, for a single family unit, the park component of the fee is calculated by multiplying the person per household (2.58) by the parkland and park improvement cost per person of $522.34 ($267.48 + $262.67 less the debt credit of $7.81 for current park debt = $522.34), which results in a fee of $1,348 per single family housing unit. Since we are showing the impact fee by component, the debt credit is only applied to the park component since the debt was issued for these types of improvements. This is repeated for the other components of the fee. All four portions of the fee are added together to calculate the total fee by type of residential unit (i.e., for single family, $1,348 + $438 + $590 + $9 = $2,385).

Figure 10: Parks and Recreation Impact Fee

Persons Per Household	Standards:
Single-Family	2.58
All Other Units	1.80
Cost per Demand Unit	
Land Cost Per Person	$267.48
Improvements Cost Per Person	$262.67
Trail Cost Per Person	$169.83
Recreation Space Cost Per Person	$228.76
Total Capital Cost Per Person	**$928.74**
Principal Payment Per Person	$7.81
Net Capital Cost per Person	**$920.93**

Maximum Supportable Impact Fee Per Housing Unit

	Parks	Trails	Recreation Facilities	Proposed Fee	Current Fee	Increase/ Decrease	% Change
Single-Family	$1,348	$438	$590	**$2,376**	$1,420	$956	67%
All Other Units	$940	$306	$412	**$1,658**	$1,176	$482	41%

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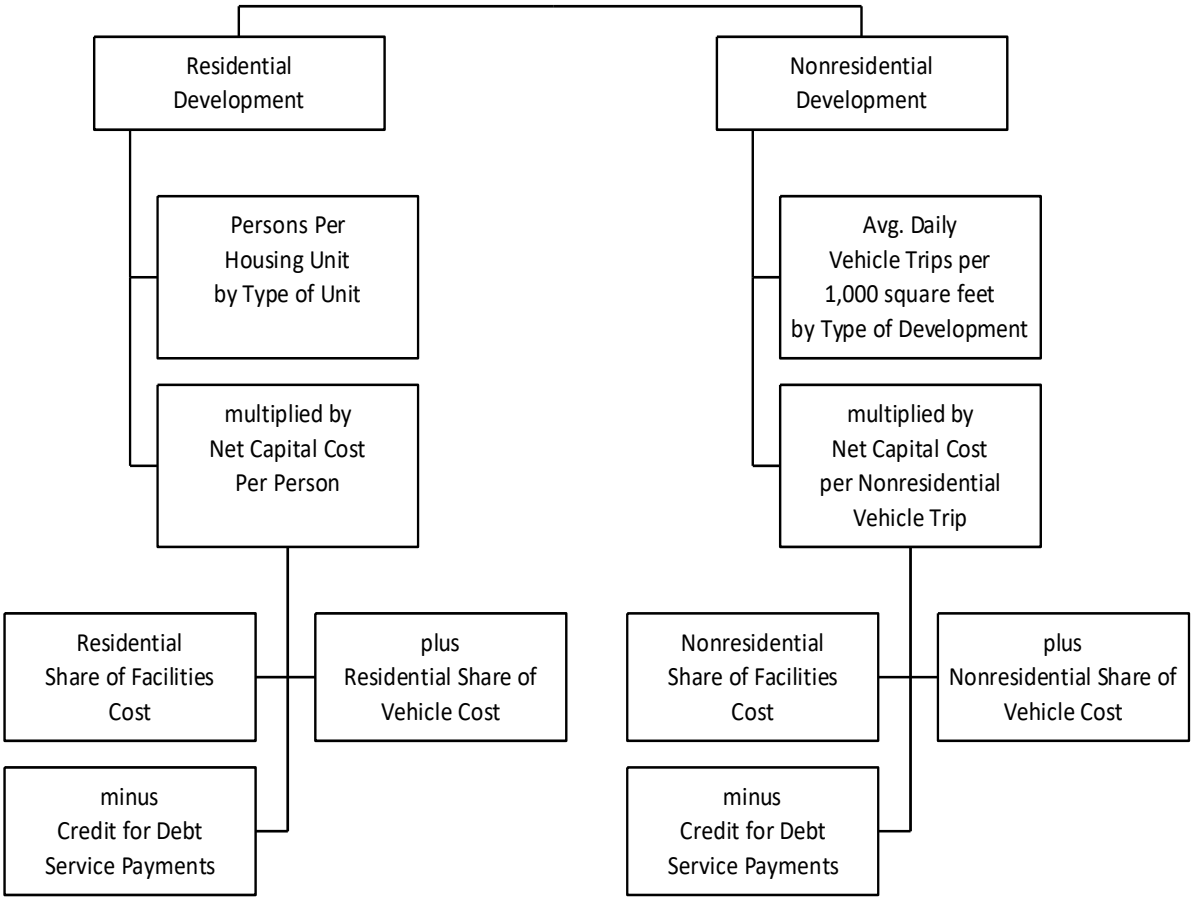
SECTION 4: POLICE

Police impact fees are derived utilizing the incremental expansion methodology, minus a principal payment credit for fire facilities that have been debt financed, for facilities and vehicles needed to accommodate new development. As shown in Figure 11, the Police impact fee uses different demand indicators for residential and nonresidential development. Residential development impact fees are calculated on a per capita basis and then converted to an appropriate amount for each type of housing based on persons per housing unit. For nonresidential development, TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for Police facilities. Trip generation rates are highest for commercial developments, such as shopping centers, and lowest for industrial/warehouse development. Office/institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for Police services from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, do not accurately reflect the demand for police protection. If employees per thousand square feet were used as the demand indicator, Police impact fees would be too high for office/institutional development. If floor area were used as the demand indicator, Police impact fees would be too high for industrial development. Also, Police officers respond to all traffic accidents, which are directly proportionate to trip generation rates.

Figure 11: Police Impact Fee Methodology Chart



Cost Allocation for Police Infrastructure

Proportionate share factors are used to allocate demand for facilities to residential and nonresidential development. To allocate costs, the City of Delaware Police Department provided calls for service data by Police District in an effort to determine whether calls for service were to residential or nonresidential development. However, because each geographic Police District has a mix of land uses and the Police Department does not currently track addresses for each call for service, TischlerBise recommends using a proportionate share allocation using a functional population approach. Figure 12 indicates that 73 percent of demand is from residential development and 27 percent from nonresidential.

Figure 12: Functional Population Calculation

	Demand Units in 2014			Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	37,458					
Residents Not Working		20,237		20	404,740	
Employed Residents		17,221				
Employed in Service Area			3,473	14	48,622	
Employed outside Service Area			13,748	14	192,472	
			Residential Subtotal		645,834	**73%**
Nonresidential						
Non-working Residents			20,237	4	80,948	
Jobs in Service Area		15,797				
Residents Employed in Service Area			3,473	10	34,730	
Non-Resident Workers (inflow Commuters)			12,324	10	123,240	
			Nonresidential Subtotal		238,918	**27%**
				TOTAL	884,752	**100%**

Source: City of Delaware 2014 Population Estimate; U.S. Census Bureau, OnTheMap 6.5 Application and LEHD Origin-Destination Employment Statistics.

Police Facilities

Existing Standards

As shown in Figure 13, the City has 37,280 square feet of Police space. The estimated replacement cost provided by the City totals $9.9 million, or a weighted average cost per square foot of $262.36. When current Police square footage is multiplied by the residential (73%) and nonresidential (27%) proportionate share factors and compared to population and nonresidential vehicle trips, the current level of service is .72 square feet per person and .18 square foot per nonresidential vehicle trip.

Cost factors per demand unit factors are derived using the average construction cost per square foot of $262.36 and the existing level of service factors discussed above. For residential development, the cost per person is $186.38 (.71 sq. ft. per person x $262.36) and for nonresidential development, the cost per vehicle trip is $45.98 (.18 sq. ft. per vehicle trip x $262.36).

Figure 13: City of Delaware Police Facilities

Facility	Square Footage	Cost/ SF*	Replacement Cost
Justice Center	35,220	$278.09	$9,794,185
Property Storage Building	2,600	$49.27	$128,089
TOTAL	**37,820**	**$262.36**	**$9,922,274**

	Proportionate Share	Demand Units		LOS Factors	Cost per Demand Unit
Residential	73%	38,862	Persons	0.71	$186.38
Nonresidential	27%	58,253	Vehicle Trips	0.18	$45.98

**City of Delaware Police Department*

Police Vehicles

Existing Standards

Figure 14 lists the current inventory of vehicles used by the Police Department. The need for additional vehicles will increase as calls for service from new development increases. The replacement costs including necessary add-ons such as lights, security items, and miscellaneous equipment.

The LOS for residential and nonresidential development is calculated using the same methodology described above. This yields a LOS for vehicles of .00056 person and .00014 per nonresidential vehicle trip. Cost factors per demand unit factors are derived using the average vehicle replacement cost of $58,700 and the existing level of service factors discussed above. For residential development, the cost per person is $33.07 (.00056 vehicles per person x $58,700) and for nonresidential development, the cost per vehicle trip is $8.16 (.00014 vehicles per nonresidential vehicle trip x $58,700).

Figure 14: City of Delaware Police Vehicles

Vehicle	Units in Service	Replacement Price*	Cost
Patrol Cars	8	$37,000	$296,000
4WD Truck	2	$25,000	$50,000
SUV	10	$75,000	$750,000
Van	1	$25,000	$25,000
Speed Trailer	1	$15,000	$15,000
Special SUV	1	$100,000	$100,000
Police Interceptor	7	$75,000	$525,000
TOTAL	**30**	**$58,700**	**$1,761,000**

	Proportionate Share	Demand Units		LOS Factors	Cost per Demand Unit
Residential	73%	38,862	Persons	0.00056	$33.07
Nonresidential	27%	58,253	Vehicle Trips	0.00014	$8.16

**City of Delaware Police Department. Price includes necessary add-ons for police functions, such as lights, security items and miscellaneous equipment*

Police Facilities Debt Credit

To avoid a potential "double payment" of capital costs due to future principal payments on existing debt for parks, a credit is applied to the impact fees. As shown in Figure 15, the City of Delaware has a remaining principal balance of $777,450. Annual principal payments are discounted at a rate of 3.60% per year to yield a present value of $14.66 per person and $3.54 per nonresidential vehicle trip.

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Figure 15: Principal Payment Credit

Fiscal Year	Principal Payments Justice Center	Residential Share 73%	Population	Credit per Person	Non-Resident Share 27%	Non-Resident Vehicle Trips	Credit per Job
2018	$90,000	$65,700	39,262	$1.67	$24,300	59,278	$0.41
2019	$90,000	$65,700	39,851	$1.65	$24,300	60,321	$0.40
2020	$90,000	$65,700	40,449	$1.62	$24,300	61,383	$0.40
2021	$90,000	$65,700	41,056	$1.60	$24,300	62,463	$0.39
2022	$90,000	$65,700	41,672	$1.58	$24,300	63,563	$0.38
2023	$95,000	$69,350	42,297	$1.64	$25,650	64,681	$0.40
2024	$90,000	$65,700	42,931	$1.53	$24,300	65,820	$0.37
2025	$90,000	$65,700	43,575	$1.51	$24,300	66,978	$0.36
2029	$100,000	$73,000	46,249	$1.58	$27,000	71,819	$0.38
2030	$100,000	$73,000	46,943	$1.56	$27,000	73,083	$0.37
2031	$105,000	$76,650	47,647	$1.61	$28,350	74,370	$0.38
2032	$35,000	$25,550	48,361	$0.53	$9,450	75,679	$0.12
		$777,450	**Total**	**$18.07**		**Total**	**$4.36**
			Discount Rate	3.6%		**Discount Rate**	3.6%
			Net Present Value	**$14.66**		**Net Present Value**	**$3.54**

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Projected Demand for Parks and Recreation Infrastructure

Ten-year growth projections for the City suggest Delaware will add 6,030 new residents and 11,104 nonresidential vehicle trips. In order to maintain current levels of service for police infrastructure, the City will need to make incremental investments. Shown in Figure 16 is the police space and vehicles needed to maintain current levels of service and the total investment necessary based on 10-years of residential and nonresidential growth. It is projected that new growth will generate demand for an additional 5,341 square feet of police building space, with an estimated cost of approximately $1.4 million. It is projected the City will need another 4 police vehicles to maintain current levels of service, at a cost of $248,000.

Figure 16: Projected Demand for Police Infrastructure

	POLICE INFRASTRUCTURE NEEDS TO MAINTAIN CURRENT STANDARDS					
	Reesidential Demand			Nonresidential Demand		
	Cost/Unit	$262.36	$58,700	Cost/Unit	$262.36	$58,700
	LOS/Person	0.7104	0.00056	LOS/Vehicle Trip	0.18	0.00014
Year	*Total Population*	*Police Space*	*Police Vehicles*	*Nonresidential Vehicle Trips*	*Police Space*	*Police Vehicles*
Base	38,862	27,609	22	58,253	10,211	8
2018	39,262	27,893	22	59,278	10,282	8
2019	39,851	28,311	22	60,321	10,385	8
2020	40,449	28,736	23	61,383	10,490	8
2021	41,056	29,167	23	62,463	10,596	8
2022	41,672	29,605	23	63,563	10,704	8
2023	42,297	30,049	24	64,681	10,813	9
2024	42,931	30,499	24	65,820	10,925	9
2025	43,575	30,957	25	66,978	11,038	9
2026	44,229	31,421	25	68,157	11,152	9
2027	44,892	31,893	25	69,357	11,268	9
10-Year Increase =>	**6,030**	**4,284**	**3**	**11,104**	**1,057**	**1**
Cost =>		**$1,123,907**	**$199,470**		**$277,319**	**$49,218**

Total Police Space Needed =>	**5,341**	**Total Police Vehicles Needed =>**	**4**
Total Police Space Cost =>	**$1,401,226**	**Total Police Vehicle Cost =>**	**$248,689**

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Police Impact Fee Variables

Factors used to derive the Police Impact Fees are summarized in Figure 17. Police impact fees are based on persons per household for the residential fee and vehicle trip ends per 1,000 square feet for nonresidential development. Average daily vehicle trip ends are from the reference book, Trip Generation, published by the Institute of Transportation Engineers (ITE), in 2012. A "trip end" represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate the nonresidential impact fees for the Police, trip generation rates are adjusted to avoid double counting each trip at both the origin and destination points. For office and industrial development, the trip factor is 50%. For an average size shopping center, the ITE (2012) indicates that on average 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 percent of attraction trips have the shopping center as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66 percent multiplied by 50 percent, or approximately 33 percent of the trip ends. Trip adjustment factors are less than 50% because retail uses attract vehicles as they pass by on arterial and collector roads. The ITE manual indicates an inverse relationship between shopping center size and pass-by trips (i.e., as shopping center size increases, the percentage of pass-by trips decreases). Therefore, an appropriate trip adjustment factor has been calculated for commercial in the Police impact fee calculations.

Figure 17: Police Impact Fee Variables

Persons Per Housing Unit	Standards:	
Single-Family	2.58	
All Other Units	1.80	
PM-Peak Vehicle Trips per 1,000 SF		
Commercial	42.70	
Office	11.03	
Industrial	3.82	
Trip Adjustment Factors		
Commercial	33%	
Office	50%	
Industrial	50%	
Level of Service	**Per Person**	**Per Trip**
Buildings Cost	$186.38	$45.98
Vehicles Cost	$33.07	$8.16
Principal Payment Credit	($14.66)	($3.54)
Net Capital Cost	**$204.79**	**$50.60**

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Maximum Supportable Police Impact Fee

Maximum allowable Police development impact fees by land use type are also shown below in Figure 18. Residential fees are per housing unit and nonresidential fees are per gross square foot of floor area. The fees are calculated by multiplying the demand units per land use type by the net capital cost per demand unit.

An example of the calculation for an average size single family unit is: the net capital cost per person ($204.79) multiplied by the persons per housing unit for that size unit (2.58) to arrive at the impact fee per average single family unit of $528. This reflects a $373 increase from the existing fee. For nonresidential land uses, the trip rate for the respective type of use is multiplied by the trip adjustment factor and then multiplied by the impact fee per trip. For example, the impact fee for a shopping center is calculated as follows: 42.70 x 33% x $50.60 to yield an impact fee amount of $713 per 1,000 square feet.

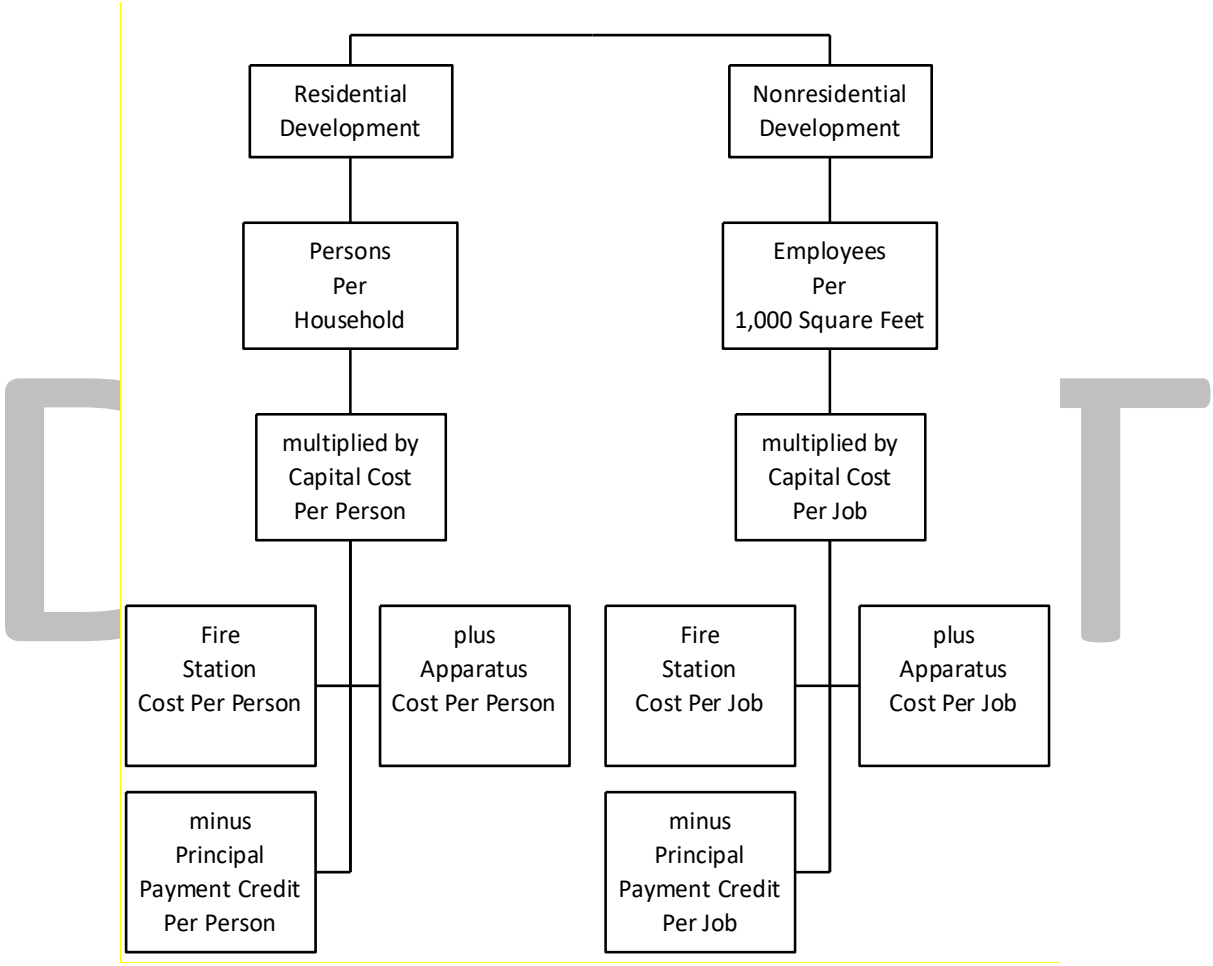
Figure 18: Police Impact Fee

Residential (per unit)	Proposed Fee	Current Fee	Increase/ Decrease	% Change
Single-Family	$528	$155	$373	241%
All Other Units	$368	$129	$239	185%
Nonresidential (per 1,000 sq. ft.)	**Proposed Fee**	**Current Fee**	**Increase/ Decrease**	**% Change**
Commercial	$713	$512	$201	39%
Office	$279	$451	($172)	-38%
Industrial	$96	$394	($298)	-76%

SECTION 5: FIRE AND EMERGENCY MEDICAL SERVICES

Impact fees for fire and EMS stations and apparatus are derived using the incremental expansion methodology minus a principal payment credit for fire facilities that have been debt financed (see Figure 19). Residential impact fees are calculated on a per capita basis and then multiplied by household size. Fees for nonresidential development are determined using employees per 1,000 square feet.

Figure 19: Fire/EMS Methodology Chart



Proportionate share factors are used to allocate demand for facilities to residential and nonresidential development. TischlerBise recommends using a proportionate share allocation based on a functional population approach, similar to what was done for Police. Figure 20 below indicates that 73 percent of demand is from residential development and 27 percent from nonresidential.

Figure 20: Fire/EMS Proportionate Share Factors

	Demand Units in 2014			Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	37,458					
Residents Not Working		20,237		20	404,740	
Employed Residents		17,221				
Employed in Service Area			3,473	14	48,622	
Employed outside Service Area			13,748	14	192,472	
			Residential Subtotal		645,834	73%
Nonresidential						
Non-working Residents			20,237	4	80,948	
Jobs in Service Area		15,797				
Residents Employed in Service Area			3,473	10	34,730	
Non-Resident Workers (inflow Commuters)			12,324	10	123,240	
			Nonresidential Subtotal		238,918	27%
				TOTAL	884,752	100%

Source: City of Delaware 2014 Population Estimate; U.S. Census Bureau, OnTheMap 6.5 Application and LEHD Origin-Destination Employment Statistics.

Fire Facilities

Existing Standards

The fire facilities component of the Fire/EMS Impact Fee for Delaware are based on current LOS standard documented in Figure 21. The City currently has 34,774 square feet of fire facilities with a total replacement cost of approximately $9.56 million, or a weighted average cost per square foot of $275. When current Fire station square footage is multiplied by the residential (73%) and nonresidential (27%) proportionate share factors and compared to population and employment, the current level of service is .65 square feet per person and .58 square foot per job.

Cost factors per demand unit factors are derived using the average construction cost per square foot of $275 and the existing level of service factors discussed above. For residential development, the cost per person is $179.63 (.65 sq. ft. per person x $275) and for nonresidential development, the cost per job is $159.09 (.58 sq. ft. per job x $275).

Figure 21: Fire Station Level of Service Standards and Cost Factors

Facility	Square Footage	Cost/ SF	Replacement Cost
301	13,750	$275	$3,781,250
301 Barn	2,500	$275	$687,500
302	9,324	$275	$2,564,100
303	9,200	$275	$2,530,000
TOTAL	**34,774**	**$275**	**$9,562,850**

	Proportionate Share	Demand Units		LOS Factors	Cost per Demand Unit
Residential	73%	38,862	Population	0.65	$179.63
Nonresidential	27%	16,229	Jobs	0.58	$159.09

Source: City of Delaware Fire Department

Fire Vehicles and EMS Apparatus

Existing Standards

Figure 22 lists the current inventory of vehicles and apparatus used by the Fire Department. The need for additional vehicles/apparatus will increase as calls for service from new development increases. The LOS for residential and nonresidential development is calculated using the same methodology described above. This yields a LOS for vehicles/apparatus of .00025 person and .00040 per job. Cost factors per demand unit factors are derived using the average vehicle/apparatus replacement cost of $297,810 and the existing level of service factors discussed above. For residential development, the cost per person is $134.26 (.00025 vehicles/apparatus per person x $297,810) and for nonresidential development, the cost per job is $118.91 (.00040 vehicle/apparatus per trip x $297,810).

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Figure 22: Fire Apparatus Level of Service Standards and Cost Factors

Item	Units	Cost Per Unit	Replacement Cost
Quint	1	$1,000,000	$1,000,000
Pumpers	4	$650,000	$2,600,000
Ladder	1	$1,250,000	$1,250,000
Medic Units	5	$310,000	$1,550,000
Hazmat Vehicle	1	$450,000	$450,000
Truck	1	$33,075	$33,075
SUV	5	$33,075	$165,375
Car	4	$10,000	$40,000
Trench Rescue Trailer	1	$39,000	$39,000
Boat/Motor/Trailer	1	$20,000	$20,000
TOTAL	**24**	**$297,810**	**$7,147,450**

	Proportionate Share	Demand Units		LOS Factors	Cost per Demand Unit
Residential	73%	38,862	Population	0.00045	$134.26
Nonresidential	27%	16,229	Jobs	0.00040	$118.91

Source: City of Delaware Fire Department. Unit prices include all add-on components (except radios) required to put the piece of apparatus or vehicle in service

Fire Facilities Debt Credit

To avoid a potential "double payment" of capital costs due to future principal payments on existing debt for fire stations and vehicles/apparatus, a credit is applied to the impact fees. As shown in Figure 23, the City of Delaware has a remaining principal balance of $2,994,671. Annual principal payments are discounted at a rate of 3.60% per year to yield a present value of future revenues of $40.81 per person and $35.41 per job.

Figure 23: Principal Payment Credit for Fire Stations and Vehicles/Apparatus

Fiscal Year	Total Principal Payments	Residential Share 73%	Population	Credit per Person	Nonresidential Share 27%	Jobs	Credit per Job
2018	$263,271	$192,187	39,262	$4.89	$71,083	16,522	$4.30
2019	$269,115	$196,454	39,851	$4.93	$72,661	16,813	$4.32
2020	$272,426	$198,871	40,449	$4.92	$73,555	17,109	$4.30
2021	$271,582	$198,254	41,056	$4.83	$73,327	17,410	$4.21
2022	$278,271	$203,137	41,672	$4.87	$75,133	17,717	$4.24
2023	$230,000	$167,900	42,297	$3.97	$62,100	18,029	$3.44
2024	$225,000	$164,250	42,931	$3.83	$60,750	18,346	$3.31
2025	$140,000	$102,200	43,575	$2.35	$37,800	18,669	$2.02
2026	$145,000	$105,850	44,229	$2.39	$39,150	18,997	$2.06
2027	$150,000	$109,500	44,892	$2.44	$40,500	19,332	$2.10
2028	$145,000	$105,850	45,565	$2.32	$39,150	19,672	$1.99
2029	$150,000	$109,500	46,249	$2.37	$40,500	20,018	$2.02
2030	$155,000	$113,150	46,943	$2.41	$41,850	20,370	$2.05
2031	$155,000	$113,150	47,647	$2.37	$41,850	20,729	$2.02
2032	$145,000	$105,850	48,361	$2.19	$39,150	21,094	$1.86
	$2,994,664	**$2,186,104**	**Total**	**$51.08**	**$808,559**	**Total**	**$44.25**
			Discount Rate	3.6%		Discount Rate	3.6%
			Net Present Value	**$40.81**		Net Present Value	**$35.41**

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Projected Demand for Fire/EMS Infrastructure

Ten-year growth projections for the City suggest Delaware will add 6,030 new residents and 3,094 jobs. In order to maintain current levels of service for Fire infrastructure, the City will need to make incremental investments. Shown in Figure 24 is the Fire station space and apparatus needed to maintain current levels of service and the total investment necessary based on 10-years of residential and nonresidential growth. It is projected that new growth will generate demand for an additional 4,284 square feet of station space, with an estimated cost of approximately $1.4 million. It is projected the City will need another 4 pieces of apparatus to maintain current levels of service, at a cost of $1.26 million.

Figure 24: Projected Demand for Fire/EMS Infrastructure

	FIRE/EMS INFRASTRUCTURE NEEDS TO MAINTAIN CURRENT STANDARDS					
	Reesidential Demand			Nonresidential Demand		
	Cost/Unit	$275.00	$297,810	Cost/Unit	$275.00	$297,810
	LOS/Person	0.7104	0.00056	LOS/Job	0.18	0.00014
Year	*Total Population*	*Station Space*	*Apparatus/ Vehicles*	*Total Jobs*	*Station Space*	*Apparatus/ Vehicles*
Base	38,862	25,385	18	16,229	9,389	6
2018	39,262	25,669	18	16,515	9,459	7
2019	39,851	26,088	18	16,805	9,562	7
2020	40,449	26,512	18	17,101	9,667	7
2021	41,056	26,943	19	17,402	9,774	7
2022	41,672	27,381	19	17,708	9,881	7
2023	42,297	27,825	19	18,020	9,991	7
2024	42,931	28,276	20	18,337	10,102	7
2025	43,575	28,733	20	18,660	10,215	7
2026	44,229	29,198	21	18,988	10,330	7
2027	44,892	29,669	21	19,323	10,446	7
10-Year Increase =>	**6,030**	**4,284**	**3**	**3,094**	**1,057**	**1**
Cost =>		**$1,178,076**	**$1,011,999**		**$290,685**	**$249,706**

Total Station Space Needed =>	**5,341**	**Total Apparatus Needed =>**	**4**
Total Station Space Cost =>	**$1,468,761**	**Total Apparatus Cost =>**	**$1,261,706**

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Maximum Supportable Fire/EMS Impact Fee

The maximum supportable Fire impact fees for Delaware are provided in Figure 25. Residential fees are per housing unit and nonresidential fees are per 1,000 square feet of floor area. The fees are calculated by multiplying the input variables at the top of Figure 25 by the net capital cost per demand unit. For example, for a single family housing unit, the net capital cost of $266.41 per person is multiplied by the persons per housing unit factor of 2.58 to equal an impact fee of $687 per single family detached unit. For a commercial development, the net capital cost of $236.66 per job is multiplied by 3.71 employees per 1,000 square feet to equal an impact fee of $878 per 1,000 square feet.

Figure 25: Fire/EMS Impact Fee

Persons Per Housing Unit	Standards:	
Single-Family	2.58	
All Other Units	1.80	
Employees Per 1,000 Square Feet		
Commercial/Retail	3.71	
Office	1.49	
Industrial/Flex	0.75	
Level Of Service	Per Person	Per Employee
Fire/EMS Facilities	$179.63	$159.09
Fire/EMS Apparatus	$134.26	$118.91
Principal Payment Credit	($47.48)	($41.34)
Net Capital Cost per Demand Unit	**$266.41**	**$236.66**

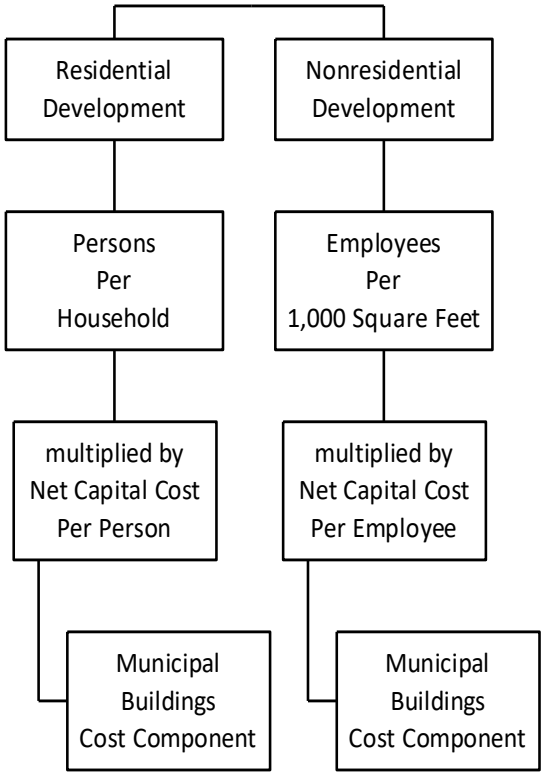
Maximum Supportable Impact Fee

Residential (per unit)	Proposed Fee	Current Fee	Increase/ Decrease	% Change
Single-Family	$687	$344	$343	100%
All Other Units	$479	$285	$194	68%
Nonresidential (per 1,000 sq. ft.)	**Proposed Fee**	**Current Fee**	**Increase/ Decrease**	**% Change**
Commercial/Retail	$878	$488	$390	80%
Office	$352	$427	($75)	-18%
Industrial/Flex	$177	$379	($202)	-53%

SECTION 6: MUNICIPAL BUILDINGS

The impact fee methodology for Municipal Buildings & Equipment utilizes an incremental expansion methodology. As shown in Figure 26, the impact fee includes buildings, vehicles and equipment. Residential factors are calculated on a per capita basis, with persons per housing unit used to differentiate the impact fee by type and size of residential development. Nonresidential factors are calculated on a per employee basis.

Figure 26: Municipal Buildings and Equipment Methodology Chart



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Proportionate share factors are used to allocate demand for municipal facilities to residential and nonresidential development. TischlerBise recommends using a proportionate share allocation based on a functional population approach, similar to what was done for Police and Fire. Figure 27 below indicates that 73 percent of demand is from residential development and 27 percent from nonresidential.

Figure 27: Municipal Facilities Proportionate Share Factors

	Demand Units in 2014			Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	37,458					
Residents Not Working		20,237		20	404,740	
Employed Residents		17,221				
Employed in Service Area			3,473	14	48,622	
Employed outside Service Area			13,748	14	192,472	
			Residential Subtotal		645,834	**73%**
Nonresidential						
Non-working Residents			20,237	4	80,948	
Jobs in Service Area		15,797				
Residents Employed in Service Area			3,473	10	34,730	
Non-Resident Workers (inflow Commuters)			12,324	10	123,240	
			Nonresidential Subtotal		238,918	**27%**
				TOTAL	884,752	**100%**

Source: City of Delaware 2014 Population Estimate; U.S. Census Bureau, OnTheMap 6.5 Application and LEHD Origin-Destination Employment Statistics.

Municipal Buildings

Existing Standards

As shown in Figure 28, the City of Delaware currently has 41,488 square feet of municipal buildings with a total replacement cost of approximately $5.83 million, or a weighted average cost per square foot of $140.56. When current municipal building square footage is multiplied by the residential (73%) and nonresidential (27%) proportionate share factors and compared to population and employment, the current level of service is .779 square feet per person and .690 square foot per job.

Cost factors per demand unit factors are derived using the average construction cost per square foot of $140.56 and the existing level of service factors discussed above. For residential development, the cost

per person is $109.54 (.779 sq. ft. per person x $140.56) and for nonresidential development, the cost per job is $97.02 (.690 sq. ft. per job x $140.56).

Figure 28: Municipal Buildings Level of Service Standards and Cost Factors

Building	Square Footage	Cost/ SF	Replacement Cost
City Hall	20,450	$195.68	$4,001,637
City Garage	21,038	$86.98	$1,829,872
TOTAL	**41,488**	**$140.56**	**$5,831,508**

	Proportionate Share	Demand Units		LOS Factors	Cost per Demand Unit
Residential	73%	38,862	Population	0.779	$109.54
Nonresidential	27%	16,229	Jobs	0.690	$97.02

Source: City of Delaware. Cost/SF includes building costs, furnishings, and equipment

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Municipal Buildings Debt Credit

To avoid a potential "double payment" of capital costs due to future principal payments on existing debt for parks, a credit is applied to the impact fees. As shown in Figure 29, the City of Delaware has a remaining principal balance of $503,700. Annual principal payments are discounted at a rate of 3.60% per year to yield a present value of future revenues of $9.45 per person and $8.20 per job.

Figure 29: Principal Payment Credit

Fiscal Year	Total Principal Payments	Residential Share 73%	Population	Credit per Person	Nonresidential Share 27%	Jobs	Credit per Job
2018	$50,000	$36,500	39,262	$0.93	$13,500	16,522	$0.82
2019	$55,000	$40,150	39,851	$1.01	$14,850	16,813	$0.88
2020	$55,000	$40,150	40,449	$0.99	$14,850	17,109	$0.87
2021	$55,000	$40,150	41,056	$0.98	$14,850	17,410	$0.85
2022	$55,000	$40,150	41,672	$0.96	$14,850	17,717	$0.84
2023	$60,000	$43,800	42,297	$1.04	$16,200	18,029	$0.90
2024	$60,000	$43,800	42,931	$1.02	$16,200	18,346	$0.88
2025	$60,000	$43,800	43,575	$1.01	$16,200	18,669	$0.87
2026	$60,000	$43,800	44,229	$0.99	$16,200	18,997	$0.85
2027	$60,000	$43,800	44,892	$0.98	$16,200	19,332	$0.84
2028	$60,000	$43,800	45,565	$0.96	$16,200	19,672	$0.82
2029	$60,000	$43,800	46,249	$0.95	$16,200	20,018	$0.81
	$690,000	**$503,700**	**Total**	**$11.81**	**$186,300**	**Total**	**$10.23**
			Discount Rate	3.6%		Discount Rate	3.6%
			Net Present Value	**$9.45**		Net Present Value	**$8.20**

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Projected Demand for Municipal Facility Infrastructure

Ten-year growth projections for the City suggest Delaware will add 6,030 new residents and 3,094 jobs. In order to maintain current levels of service for Municipal infrastructure, the City will need to make incremental investments. Shown in Figure 30 is the Municipal space needed to maintain current levels of service and the total investment necessary based on 10-years of residential and nonresidential growth. It is projected that new growth will generate demand for an additional 8,62 square feet of Municipal space, with an estimated cost of approximately $1.24 million.

Figure 30: Projected Demand for Municipal Facility Infrastructure

	MUNICIPAL INFRASTRUCTURE NEEDS TO MAINTAIN CURRENT STANDARDS			
	Reesidential Demand		Nonresidential Demand	
	Cost/Unit	$140.56		
	LOS/Person	0.7793	LOS/Vehicle Trip	0.69
Year	*Total Population*	*Municipal Space*	*Total Jobs*	*Municipal Space*
Base	38,862	25,385	16,229	9,389
2018	39,262	25,697	16,515	9,665
2019	39,851	26,156	16,805	10,072
2020	40,449	26,622	17,101	10,484
2021	41,056	27,095	17,402	10,903
2022	41,672	27,575	17,708	11,328
2023	42,297	28,062	18,020	11,760
2024	42,931	28,556	18,337	12,198
2025	43,575	29,058	18,660	12,642
2026	44,229	29,567	18,988	13,093
2027	44,892	30,084	19,323	13,551
10-Year Increase =>	**6,030**	**4,699**	**3,094**	**4,162**
Cost =>		**$660,541**		**$585,025**

Total Station Space Needed =>	**8,862**
Total Station Space Cost =>	**$1,245,566**

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Maximum Supportable Municipal Buildings Impact Fee

Maximum supportable impact fees for municipal buildings are provided below in the bottom section of Figure 31. Residential fees are per housing unit and nonresidential fees are per 1,000 square feet of floor area. The fees are calculated by multiplying the input variables from the above figure by the net capital cost per demand unit. For example, for a single family detached housing unit, the net capital cost of $100.11 per person is multiplied by the persons per housing unit factor of 2.58 to equal an impact fee of $258 per single family detached unit. For a commercial/retail development, the net capital cost of $93.82 per job is multiplied by 3.71 employees per 1,000 square feet to equal an impact fee of $348 per 1,000 square feet.

Figure 31: Municipal Facilities Impact Fee

Persons Per Housing Unit	Standards:	
Single-Family	2.58	
All Other Units	1.80	
Employees Per 1,000 Square Feet		
Commercial/Retail	3.71	
Office	1.49	
Industrial/Flex	0.75	
Level Of Service	Per Person	Per Employee
Buildings	$109.54	$97.02
Principal Payment Credit	($9.43)	($3.20)
Net Capital Cost per Demand Unit	**$100.11**	**$93.82**

Maximum Supportable Impact Fee

Residential (per unit)	Proposed Fee	Current Fee	Increase/ Decrease	% Change
Single-Family	$258	$488	($230)	-47%
All Other Units	$180	$340	($160)	-47%
Nonresidential (per 1,000 sq. ft.)	**Proposed Fee**	**Current Fee**	**Increase/ Decrease**	**% Change**
Commercial/Retail	$348	$541	($193)	-36%
Office	$139	$472	($333)	-71%
Industrial/Flex	$70	$419	($349)	-83%

APPENDIX A: LAND USE ASSUMPTIONS

As part of our Work Scope, TischlerBise has prepared documentation on demographic data and development projections that will be used in the Impact Fee Study. These assumptions are largely based on the demographic data estimates for the 2016 Annual Report for Planning and Community Development. The development projections are used solely for the purpose of having an understanding of the possible future pace of service demands, impact fee revenues, and capital expenditures.

Calculations throughout this Appendix are based on an analysis conducted using Excel software. Results are discussed in the memo using one-and two-digit places (in most cases), which represent rounded figures. However, the analysis itself uses figures carried to their ultimate decimal places; therefore the sums and products generated in the analysis may not equal the sum or product if the reader replicates the calculation with the factors shown in the report (due to the rounding of figures shown, not in the analysis).

HOUSEHOLD AND HOUSING UNIT CHARACTERISTICS

According to the U.S. Census Bureau, a household is a housing unit that is occupied by year-round residents. Impact fees often use per capita standards and persons per housing unit (PPHU) or persons per household (PPH) to derive proportionate share fee amounts. When PPHU is used in the fee calculations, infrastructure standards are derived using year-round population. TischlerBise recommends that impact fees for residential development in the City of Delaware be imposed according to the number of persons per housing unit.

Persons per Household requires data on population in occupied units and the types of units by structure. The 2010 census did not obtain detailed information using a "long-form" questionnaire. Instead, the U.S. Census Bureau switched to a continuous monthly mailing of surveys, known as the American Community Survey (ACS), which has limitations due to sample-size constraints. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses). For impact fees in the City of Delaware, "single-family" residential units, listed as single units below, include detached (both stick-built and manufactured) and attached (commonly known as townhouses that share a common sidewall but are constructed on an individual parcel of land). The second residential category, referred to as "multi-family" in this study, includes duplexes, mobile homes, and all other structures with two or more units on an individual parcel of land. This category is shown below as All Other Units.

Figure A1 shows the ACS 2015 5-Year Estimates for the City of Delaware. To calculate the persons per housing unit, persons (34,477) is divided by housing unit (14,784). Dwellings with a single unit per structure (detached and attached) averaged 2.58 persons per housing unit. All other units averaged 1.80 persons per housing unit. The 2015 City of Delaware average *Persons per Housing Unit* factor was 2.33.

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Figure A1. Household Size by Type of Housing Unit

Units in Structure	Persons	House-holds	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single-Family Unit	26,176	9,644	2.71	10,161	2.58	69%	5%
All Other Units	8,301	4,285	1.94	4,623	1.80	31%	7%
Total	34,477	13,929	2.48	14,784	2.33		6%

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

CURRENT POPULATION AND HOUSING UNIT ESTIMATES

To estimate current housing units in the City, TischlerBise obtained building permit information from the City of Delaware. This information is then used to determine a current estimate of housing units as well as to estimate current population. Residential building permit trends by type of housing unit are shown in Figure A2 below. As Figure A2 indicates, new residential units averaged 227 units from 2005 to 2015. Using the City's 2011 population of 35,321 and average household size, we estimate number of housing units in 2011 at 15,159. Using this building permit data, we can estimate the growth in housing units over the last five years and the current number of housing units in the City by type of unit. Population growth over the last five years as well as the current estimated population (for 2016) is derived using housing units and persons per housing unit. The number of housing units in 2016 is estimated at 16,237 with a 2016 population of 38,110.

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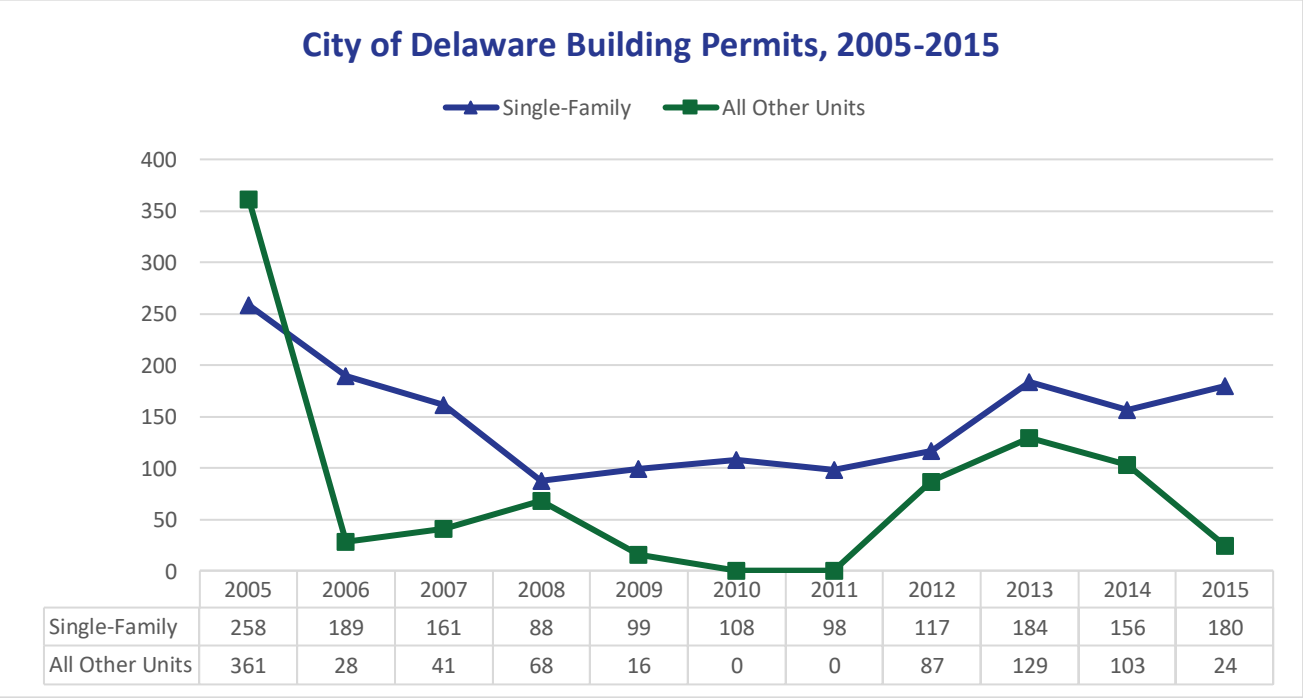
Figure A2. Residential Building Permits in the City of Delaware, 2005-2015



	Issued during calendar year											
Building Permits	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*average*
Single-Family	258	189	161	88	99	108	98	117	184	156	180	*149*
All Other Units	361	28	41	68	16	0	0	87	129	103	24	*78*
Total	619	217	202	156	115	108	98	204	313	259	204	*227*

POPULATION AND HOUSING UNIT PROJECTIONS

TischlerBise analyzed recent growth trends, reviewed the City of Delaware Comprehensive Plan, and had discussions with staff. Over the past 10 years, the City has seen an average of 227 residential building permits a year. Based on these growth patterns and assuming the slow economic recovery continues at a measured pace, population growth is projected at a 1.5 percent annual growth rate. At this pace of growth, the average annual projected increase is 298 housing units and 699 persons, over the 20-year projection period. Given the recent economic downturn and slow recovery, the projected growth is gradual in the initial years. It is assumed that the distribution between single family and multifamily units is held constant with 70 percent of the housing stock single family homes and the remainder multifamily.

Population and housing unit projections are used for the purpose of having an understanding of the possible future pace of service demands, revenues, and expenditures. As these factors will vary to the extent that future development varies, there will be virtually no effect on the actual amount of the impact fee.

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Figure A3. Population and Housing Unit Projections in the City of Delaware, 2017-2037

			Base Yr	*1*	*2*	*3*	*4*	*5*	*10*	*15*	*20*	*Cumulative Increase*	*Avg. Ann. Increase*
	Year=>	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2027**	**2032**	**2037**	***2017-2037***	***2017-2037***
RESIDENTIAL DEVELOPMENT													
Population		38,110	38,682	39,262	39,851	40,449	41,056	41,672	44,892	48,361	52,099	**13,989**	**699**
Housing Units	*Unit Mix*												
Single-Family	*70%*	11,389	11,560	11,734	11,910	12,088	12,270	12,454	13,416	14,453	15,570	**4,181**	**209**
All Other Units	*30%*	4,848	4,920	4,994	5,069	5,145	5,222	5,301	5,710	6,152	6,627	**1,779**	**89**
TOTAL		16,237	16,481	16,728	16,979	17,233	17,492	17,754	19,126	20,605	22,197	**5,960**	**298**

	1	*2*	*3*	*4*	*5*	*10*	*15*	*20*	***2017-2037***
ANNUAL INCREASES	*17-18*	*18-19*	*19-20*	*20-21*	*21-22*	*26-27*	*31-32*	*36-37*	***Avg Annual***
Population	580	589	598	607	616	663	715	770	**699**
Housing Units	247	251	255	259	262	283	305	328	**298**

Sources: City of Delaware; TischlerBise.

To estimate current nonresidential floor area in the City, TischlerBise utilized information from the City's GIS system, shown in Figure A4. The City has approximately 11.2 million square feet of nonresidential space and 16,229 jobs.

Figure A4. Estimated Employment and Nonresidential Floor Area in the City of Delaware

2017 Total Estimated Jobs	16,229

	Percent by Nonresidential Land Use	2017 Nonres Floor Area Estimate
Retail	*25%*	2,789,016
Office	*4%*	496,950
Industrial	*71%*	7,960,493
	100%	11,246,459

Nonresidential Floor Area and Employment Projections

Future employment growth and nonresidential development in the City are projected based on information provided by City staff, TischlerBise's analysis of past trends, as well as examination of state and regional projections from the Ohio Department of Labor and MORPC. Ohio Department of Labor projects a growth rate of 1.76 percent for the state of Ohio and the City of Delaware projects a growth rate of 4.6 percent for the City. To be conservative, we average the two growth rates and assume a 3.18 percent growth in employment over the projection period. The projected increase in employment is then used to project growth in nonresidential square footage using the employee per square foot data discussed above. Results are shown in Figure A5 below.

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Figure A5. Nonresidential Floor Area and Employment Projections in the City of Delaware, 2017-2037

				Base Yr	*1*	*2*	*3*	*4*	*5*	*10*	*15*	*20*	*Cumulative Increase*	*Avg. Ann. Increase*
	Year=>		**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2027**	**2032**	**2037**	*2017-2037*	*2017-2037*
NONRESIDENTIAL DEVELOPMENT														
Nonres Floor Area (1,000 SF)	*% of ttl*													
Commercial (1,000 SF)	*25%*	*##*	2,741	2,789	2,838	2,888	2,939	2,991	3,043	3,321	3,623	3,954	**1,213**	**61**
Office (1,000 SF)	*4%*	*##*	488	497	506	515	524	533	542	592	646	704	**216**	**11**
Industrial/Flex (1,000 SF)	*71%*	*##*	7,823	7,960	8,101	8,243	8,388	8,536	8,686	9,478	10,342	11,284	**3,462**	**173**
TOTAL			11,052	11,246	11,444	11,646	11,851	12,059	12,272	13,390	14,611	15,943	**4,891**	**245**
Employment By Type														
Commercial/Retail	25%		3,955	4,025	4,095	4,168	4,241	4,316	4,392	4,792	5,229	5,705	**1,750**	**88**
Office	4%		705	717	730	743	756	769	782	854	932	1,017	**312**	**16**
Industrial/Flex	71%		11,289	11,487	11,689	11,895	12,105	12,318	12,534	13,677	14,924	16,284	**4,995**	**250**
TOTAL			15,948	16,229	16,515	16,805	17,101	17,402	17,708	19,323	21,084	23,006	**7,057**	**353**

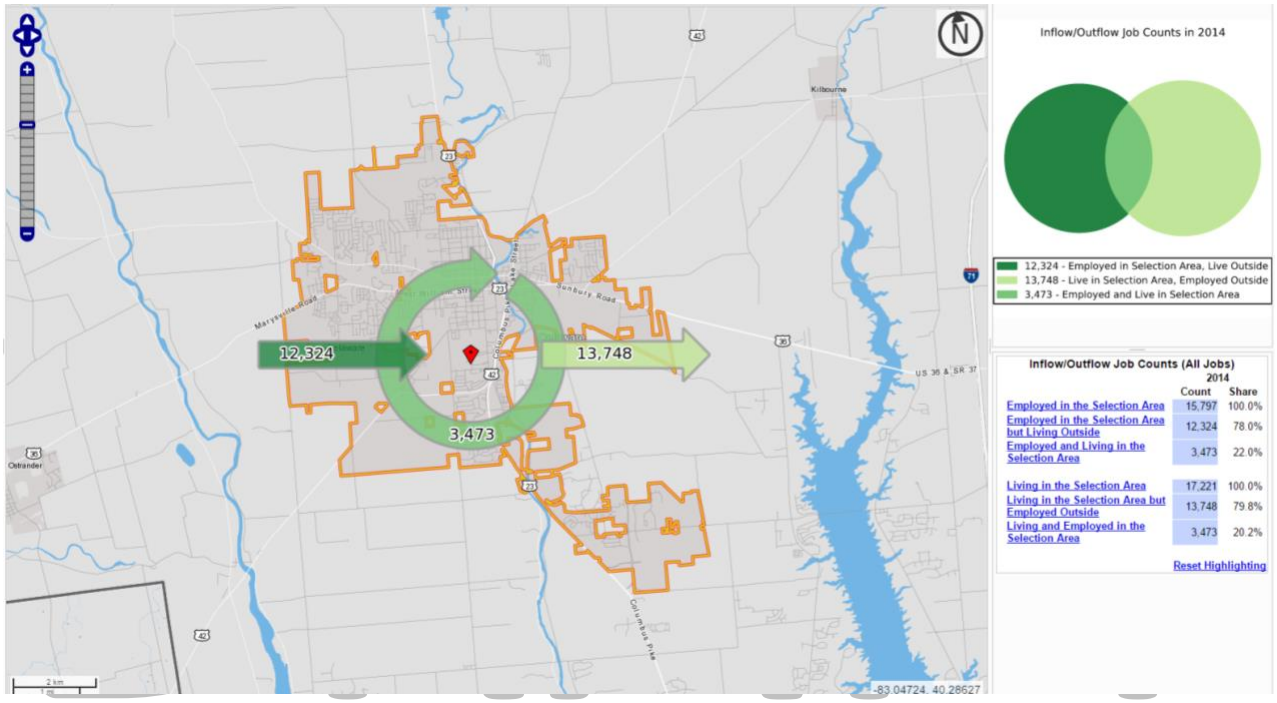
	1	*2*	*3*	*4*	*5*	*10*	*15*	*20*	*2017-2037*
ANNUAL INCREASES	*17-18*	*18-19*	*19-20*	*20-21*	*21-22*	*26-27*	*31-32*	*36-37*	*Avg Annual*
Jobs	286	291	296	301	306	334	365	398	**353**
Nonres Floor Area (1,000 SF)	198	201	205	209	212	232	253	276	**245**

Commuting Patterns and Functional Population

As shown in Figure A6, the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) web application, OnTheMap, indicates that the City of Delaware received a significant inflow of 12,324 workers

on an average weekday in 2014 (the most recent data year available). In addition to these non-resident workers, another 3,473 persons lived and worked in the City of Delaware in 2014. TischlerBise will account for commuting patterns in the allocation of transportation infrastructure costs to residential and nonresidential development, and to derive functional population, as described in Figure A7.

Figure A6: Inflow/Outflow Analysis, 2014



Source: U.S. Census Bureau. (2015). OnTheMap Version 6.5, Inflow/Outflow Jobs Counts All Jobs) City of Delaware, Ohio.

Functional Population

TischlerBise recommends functional population to allocate the cost of certain facilities to residential and nonresidential development. Functional population has a long history in the professional literature. Originally called activity analysis by Stuart Chapin in 1965, and incorporated into the impact fee methodology by James Nicholas in the mid-1980s, functional population can be used to equitably spread infrastructure costs between residential and nonresidential sectors. TischlerBise has refined the functional population concept by incorporating what the U.S. Census Bureau calls "daytime population." Using jurisdiction-specific data on commuting patterns (discussed above), it is now possible to roughly estimate where people live and work (i.e., spend their daily hours).

As shown below, residents that do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents that work in the City are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside the City are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development.

Based on 2014 population data from the City of Delaware, and U.S. Census Bureau data from the LEHD program, the proportionate share for residential development is 73% (rounded), while nonresidential development accounts for 27% (rounded) of the functional population distribution.

Figure A9: Functional Population

	Demand Units in 2014			Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	37,458					
Residents Not Working		20,237		20	404,740	
Employed Residents		17,221				
Employed in Service Area			3,473	14	48,622	
Employed outside Service Area			13,748	14	192,472	
			Residential Subtotal		645,834	**73%**
Nonresidential						
Non-working Residents			20,237	4	80,948	
Jobs in Service Area		15,797				
Residents Employed in Service Area			3,473	10	34,730	
Non-Resident Workers (inflow Commuters)			12,324	10	123,240	
			Nonresidential Subtotal		238,918	**27%**
				TOTAL	884,752	**100%**

Source: City of Delaware 2014 Population Estimate; U.S. Census Bureau, OnTheMap 6.5 Application and LEHD Origin-Destination Employment Statistics.

Figure A11. Average Weekday Vehicle Trip Ends by Housing Type in the City of Delaware

		Households (2)			Vehicles per
	Vehicles Available (1)	*Single Unit per Structure*	*All Other Units per Structure*	*Total*	*Household by Tenure*
Owner-occupied	16,462	8,332	374	8,706	1.89
Renter-occupied	6,479	1,312	3,911	5,223	1.24
TOTAL	**22,941**	**9,644**	**4,285**	**13,929**	**1.65**
Housing Units (6) =>		10,161	4,623	14,784	
Persons per Housing Unit =>		2.58	1.80		

Units per Structure	*Persons (3)*	*Trip Ends (4)*	*Vehicles by Type of Housing*	*Trip Ends (5)*	*Average Trip Ends*	*Trip Ends per Housing Unit*	*ITE Trip Ends Per Unit*	*Difference from ITE*
Single Units	26,176	67,750	17,382	100,480	84,115	8.28	9.52	13%
All Other Units	8,301	28,740	5,559	22,195	25,467	5.51	6.65	17%
TOTAL	34,477	96,490	22,941	122,675	109,582	7.41		

(1) Vehicles available by tenure from Table B25046, American Community Survey, 2011-2015.
(2) Households by tenure and units in structure from Table B25032, American Community Survey, 2011-2015.
(3) Persons by units in structure from Table B25033, American Community Survey, 2011-2015.
(4) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.91*LN(persons)+1.52). To approximate the average population of the ITE studies, persons were divided by 47 and the equation result multiplied by 47. For 2+ unit housing (ITE 220), the fitted curve equation is (3.47*persons)-64.48.
(5) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.81). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 67.6 and the equation result multiplied by 67.6. For 2+ unit housing (ITE 220), the fitted curve equation is (3.94*vehicles)+293.58.
(6) Housing units from Table B25024, American Community Survey, 2011-2015.

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As shown, a single family detached unit has an average daily trip rate of 8.28 per unit (compared to 9.52 from ITE) and a multifamily unit has an average daily trip rate of 5.51 trips per unit (compared to 6.65 per unit from ITE). Using this data, average daily trips in the City can be derived.

As shown in Figure A12 the City of Delaware generates an average of 131,284 vehicle trips on an average weekday. Residential development is estimated to generate 75,029 vehicle trips, or 57% of all trips, compared to 56,255 vehicles trips (43%) generated by nonresidential development. An example of the calculation for single residential units is as follows: 11,389 units X 8.28 vehicles trips per day per unit X 62% adjustment factor = 58,468 total vehicles trips per day from single-family units in the City. The same calculation is repeated for each land use type.

Figure A12. Average Daily Trips from Existing Development in the City of Delaware

Residential Vehicle Trips on an Average Weekday (2016)		
Residential Units	Assumptions	
Single-Family	11,389	
Multi-family	4,848	
Average Weekday Vehicle Trip Ends per Unit*	Trip Rate	Trip Factor
Single-Family	8.28	62%
Multi-family	5.51	62%
Residential Vehicle Trip Ends of an Average Weekday		
Single Family	58,468	
Multi-family	16,561	% of total
Total Residential Trips	**75,029**	**57%**

Nonresidential Vehicle Trips on an Average Weekday (2016)		
Nonresidential Gross Floor Area (1,000 Sq. Ft.)	Assumptions	
Commercial/Retail	2,741	
Office/Institutional	488	
Industrial/Flex	7,823	
Average Weekday Vehicle Trips Ends per 1,000 Sq. Ft.**	Trip Rate	Trip Factor
Commercial	42.70	33%
Office/Institutional	11.03	50%
Industrial	3.82	50%
Nonresidential Vehicle Trips on an Average Weekday		
Commercial	38,620	
Office/Institutional	2,693	
Industrial/Flex	14,942	
Total Nonresidential Trips	**56,255**	**43%**
TOTAL TRIPS	**131,284**	**100%**

*Trip rates are customized for City of Delaware. See accompanying tables and discussion.
**Trip rates are from the Institute of Transportation Engineers (ITE) Trip Generation Manual (2012)

SUMMARY

Demographic data summarized in Figure A13 are the key inputs for the Impact Fee Study. Cumulative data are shown at the top and projected annual increases by type of development are shown at the bottom of the figure.

The development projections are used for the purpose of having an understanding of the future pace of service demands and cash flows resulting from revenues and expenditures associated with those service demands. However, impact fee methodologies are designed to reduce sensitivity to accurate development projections in the determination of the proportionate share fee amounts. If actual development is slower than projected, impact fee revenue will decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, the City will receive an

increase in impact fee revenue but will also need to accelerate capital improvements to keep pace with development.

As analysis continues on the impact fees, additional demographic analysis may need to occur. This memo will be revised as such to reflect this additional information if necessary and will be included in the final report as an Appendix.

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Figure A13. Annual Demand Projections, 2016-2036

													Cumulative	Avg. Ann.
			Base Yr	1	2	3	4	5	10	15	20		Increase	Increase
	Year=>		2016	2017	2018	2019	2020	2021	2022	2027	2032	2037	2017-2037	2017-2037
SUMMARY OF DEMAND PROJECTIONS														
TOTAL POPULATION			38,110	38,682	39,262	39,851	40,449	41,056	41,672	44,892	48,361	52,099	**13,989**	**699**
TOTAL HOUSING UNITS			16,237	16,481	16,728	16,979	17,233	17,492	17,754	19,126	20,605	22,197	**5,960**	**298**
TOTAL JOBS			15,948	16,229	16,515	16,805	17,101	17,402	17,708	19,323	21,084	23,006	**7,057**	**353**
TOTAL POPULATION AND JOBS			54,059	54,911	55,777	56,657	57,550	58,458	59,380	64,215	69,445	75,105	**21,046**	**1,052**
Jobs to Population Ratio			0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.44	0.44		
RESIDENTIAL DEVELOPMENT														
Population			38,110	38,682	39,262	39,851	40,449	41,056	41,672	44,892	48,361	52,099	**13,989**	**699**
Housing Units	*Unit Mix*													
Single-Family	*70%*		11,389	11,560	11,734	11,910	12,088	12,270	12,454	13,416	14,453	15,570	**4,181**	**209**
All Other Units	*30%*		4,848	4,920	4,994	5,069	5,145	5,222	5,301	5,710	6,152	6,627	**1,779**	**89**
TOTAL			16,237	16,481	16,728	16,979	17,233	17,492	17,754	19,126	20,605	22,197	**5,960**	**298**
NONRESIDENTIAL DEVELOPMENT														
Nonres Floor Area (1,000 SF)	*% of ttl*													
Commercial (1,000 SF)	*25%*		2,741	2,789	2,838	2,888	2,939	2,991	3,043	3,321	3,623	3,954	**1,213**	**61**
Office (1,000 SF)	*4%*		488	497	506	515	524	533	542	592	646	704	**216**	**11**
Industrial/Flex (1,000 SF)	*71%*		7,823	7,960	8,101	8,243	8,388	8,536	8,686	9,478	10,342	11,284	**3,462**	**173**
TOTAL			11,052	11,246	11,444	11,646	11,851	12,059	12,272	13,390	14,611	15,943	**4,891**	**245**
Employment By Type														
Commercial/Retail	25%		3,955	4,025	4,095	4,168	4,241	4,316	4,392	4,792	5,229	5,705	**1,750**	**88**
Office	4%		705	717	730	743	756	769	782	854	932	1,017	**312**	**16**
Industrial/Flex	71%		11,289	11,487	11,689	11,895	12,105	12,318	12,534	13,677	14,924	16,284	**4,995**	**250**
TOTAL			15,948	16,229	16,515	16,805	17,101	17,402	17,708	19,323	21,084	23,006	**7,057**	**353**
VEHICLE TRIPS														
Residential Trips	*Trip Rates*	*Adj. %*												
Single-Family	*8.28*	*62%*	58,468	59,346	60,236	61,139	62,056	62,987	63,932	68,873	74,196	79,930	**21,461**	**1,073**
All Other Units	*5.51*	*62%*	16,561	16,809	17,061	17,317	17,577	17,840	18,108	19,507	21,015	22,639	**6,079**	**304**
TOTAL Residential Trips			75,029	76,154	77,297	78,456	79,633	80,828	82,040	88,380	95,211	#######	**27,540**	**1,377**
Nonresidential Trips														
Commercial (1,000 SF)	*42.70*	*33%*	38,620	39,300	39,992	40,696	41,412	42,141	42,882	46,791	51,056	55,710	**17,090**	**854**
Office (1,000 SF)	*11.03*	*50%*	2,693	2,741	2,789	2,838	2,888	2,939	2,990	3,263	3,561	3,885	**1,192**	**60**
Industrial/Flex (1,000 SF)	*3.82*	*50%*	14,942	15,205	15,472	15,744	16,022	16,304	16,590	18,103	19,753	21,553	**6,612**	**331**
TOTAL Nonresidential Trips			56,255	57,245	58,253	59,278	60,321	61,383	62,463	68,157	74,370	81,149	**24,894**	**1,245**
GRAND TOTAL Trips			######	133,400	135,550	137,734	139,954	142,211	144,503	156,537	169,580	#######	**59,603**	**2,980**

LAND USE DEFINITIONS

Residential Development

As discussed below, residential development categories are based on data from the U.S. Census Bureau, American Community Survey. The City of Delaware will collect impact fees from all new residential units. One-time impact fees are determined by site capacity (i.e. number of residential units).

Single-Family:

1. Single-family detached is a 1-unit structure detached from any other house, that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house that contains a business is considered detached as long as the building has open space on all four sides.
2. Single-family attached (townhouse) is a 1-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.

Multi-Family (All Other Units):

1. 2+ units (duplexes and apartments) are units in structures containing two or more housing units, further categorized as units in structures with "2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more apartments."
2. Boat, RV, Van, Etc. includes any living quarters occupied as a housing unit that does not fit the other categories (e.g., houseboats, railroad cars, campers, and vans). Recreational vehicles, boats, vans, railroad cars, and the like are included only if they are occupied as a current place of residence.
3. Mobile home includes both occupied and vacant mobile homes, to which no permanent rooms have been added, are counted in this category. Mobile homes used only for business purposes or for extra sleeping space and mobile homes for sale on a dealer's lot, at the factory, or in storage are not counted in the housing inventory.

Nonresidential Development

The proposed general nonresidential development categories (defined below) can be used for all new construction within The City of Delaware. Nonresidential development categories represent general groups of land uses that share similar average weekday vehicle trip generation rates and employment densities (i.e., jobs per thousand square feet of floor area).

Commercial: Establishments primarily selling merchandise, eating/drinking places, and entertainment uses. By way of example, *Commercial* includes shopping centers, supermarkets, pharmacies, restaurants, bars, nightclubs, automobile dealerships, and movie theaters, hotels and motels.

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Office: Establishments providing management, administrative, professional, or business services; personal and health care services; lodging facilities. By way of example, *Office* includes banks, business offices; assisted living facilities, nursing homes, hospitals and medical offices; and veterinarian clinics.

Industrial: Establishments primarily engaged in the production, transportation, or storage of goods. By way of example, *Industrial* includes manufacturing plants, distribution warehouses, trucking companies, utility substations, power generation facilities, and telecommunications buildings.

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