



# Predictive Forecasting of Crime

Prepared by KEYSTATS, Inc. For the New York City Police Department

# Data Elements

# Data

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**Prevalence or Risk of Crime is driven by:**

- **Time and Location**
- **Individuals predisposed to Crime**
- **An environment that enables Crime**

The degree to which a certain unit of geography is predisposed to Crime is a function of all three of these dimensions.

As such, required Data Elements need to bring to the surface a means for identifying where, when, who, and perhaps how a certain Crime event will occur.

**We require at least 3 years of the most recent data** *(Five years would be ideal)*

# Data – Dimensions

## The Incident/ Event

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
EVENT/ INCIDENT	Time	Date	Date
		Time	Time
	Location	Longitude/ Latitude	Spatial Coordinates
	Location	Cross-Street	Nearest Cross Street
	Offense Type	Offense Type	<p>NYPD Compstat reports on:</p> <ul style="list-style-type: none"> <li>• Murder, Rape, Robbery, Fel. Assault, Burglary, Gr. Larceny, G.L.A.</li> <li>• Transit, Housing, Petit Larceny, Misd. Assault, Misd. Sex Crimes, Shooting Vic., Shooting Inc.</li> </ul> <p>Can discuss exact Level of Offense Hierarchy to Consider</p> <ul style="list-style-type: none"> <li>• Severity is embedded in Typology</li> </ul>
	Offense Type	Drug/ NonDrug	Event is Drug or NonDrug Related
	Offense Type	Drug Offense	Depictive of Specific Drug and Level of Offense
	Offense Type	Dispatch Record	Dispatch Record potentially provides auxiliary information not discretely captured elsewhere
<p><u>Sources:</u> NYPD</p> <p><u>Levels:</u> By incidence level, <i>Place Block group code and Census Tract Code on each incident record</i></p>			

# Data – Dimensions

## The Parole/ Probation Population In Existence

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
RISK-Individuals	PAROLE PROBATION	# of Parolees, # Individuals on Probation	Count
		# of Parolees, # Individuals on Probation by Type of Past Offenses	Provides Parolee/ Probation Type
		Average # of Past Offenses	Count
		Average Time Since Last Offense By Type	Duration since Last Offense
		Average Frequency of Past Offense By Type	“Volume” of Crime
<u>Sources:</u> The New York City Dept. of Corrections , New York State Division of Criminal Justice Services, New York City Dept. of Probation, New York State Division of Parole			
<u>Levels:</u> By Week , at the Block Group Level			

# Data – Dimensions *(Keystats will acquire this data)*

## The Geography/ Area In Existence (Demographics)

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION	
RISK- GEOGRAPHY	Std Demographics	Demographic	Standard Demographic Information (Age, Sex, etc)	
		RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS	Wealth of Geography	
		PLACE OF BIRTH	--	
		MEDIAN INCOME IN THE PAST 12 MONTHS	--	
	Residence Last Year - Migration	GEOGRAPHICAL MOBILITY IN THE PAST YEAR	--	
	Journey to Work	MEANS OF TRANSPORTATION TO WORK	--	
	Children - Relationship	POPULATION UNDER 18 YEARS BY AGE	--	
		HOUSEHOLD TYPE (INCLUDING LIVING ALONE) BY RELATIONSHIP	--	
	<u>Sources:</u> <i>Keystats we utilize Bureau of Census &amp; other data sources to gather this type of information</i>			
	<u>Levels:</u> <i>By Year; Block Group Level &amp; Census Tract Level</i>			

# Data – Dimensions *(Keystats will acquire this data)*

## The Geography/ Area In Existence (Demographics)

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
RISK-GEOGRAPHY	Children - Relationship	RECEIPT OF SUPPLEMENTAL SECURITY INCOME (SSI), CASH PUBLIC ASSISTANCE INCOME, OR FOOD STAMPS/SNAP IN THE PAST 12 MONTH	
	Households - Families	FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN UNDER 18 YEARS	--
	“	HOUSEHOLD TYPE BY TENURE	--
	“	HOUSEHOLD TYPE BY HOUSEHOLD SIZE	--
	“	MULTIGENERATIONAL HOUSEHOLDS	--
	Marital-Status	MEDIAN AGE AT FIRST MARRIAGE	--
	“	MARRIAGES ENDING IN WIDOWHOOD	--
	“	DIVORCES IN THE LAST YEAR	--
	“	MEDIAN DURATION OF CURRENT MARRIAGE IN YEARS	--
<p><b>Sources:</b> <u>Keystats we utilize Bureau of Census &amp; other data sources to gather this type of information</u></p> <p><b>Levels:</b> <u>By Year, Block Group Level &amp; Census Tract Level</u></p>			

# Data – Dimensions *(Keystats will acquire this data)*

## The Geography/ Area In Existence (Demographics)

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
RISK-GEOGRAPHY	School Enrollment	SCHOOL ENROLLMENT BY LEVEL OF SCHOOL FOR THE POPULATION 3 YEARS AND OVER	
		POVERTY STATUS IN THE PAST 12 MONTHS BY SCHOOL ENROLLMENT BY LEVEL OF SCHOOL	--
	Educational Attainment	EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER	--
		HOUSEHOLD LANGUAGE BY HOUSEHOLD LIMITED ENGLISH SPEAKING STATUS	--
	Poverty	POVERTY STATUS IN THE PAST 12 MONTHS	--
	Income	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS	--
	Transfer Programs	PUBLIC ASSISTANCE INCOME IN THE PAST 12 MONTHS FOR HOUSEHOLDS	--
		PER CAPITA INCOME IN THE PAST 12 MONTHS	--

Sources: Keystats we utilize Bureau of Census & other data sources to gather this type of information

Levels: By Year; Block Group Level & Census Tract Level



# Data – Dimensions

## Policy Factors Impacting Risk For Crime

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
RISK-POLICY	Resources	Budget – Patrol Cars Tours	Dollar amount expended on Patrol Car Tours
	Manpower	Budget or # of Patrol Officers	--
	Special Events	Any Special Events	Events at Jacob Javits Center (Auto/ Computer/ Boat Show), Holidays, etc.
	Tactics	Stop & Frisk ( # stop & frisk events)	--
			--
			--
			--
			--
			--
<u>Sources:</u> NYPD <u>Levels:</u> By Quarter, at Block Group Level & Census Tract Level			



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**We require at least 3 years of the most recent data** *(Five years would be ideal)*

# Data – Dimensions

## The Incident/ Event

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
EVENT/ INCIDENT	Time	Date	Date
		Time	Time
	Location	Longitude/ Latitude	Spatial Coordinates
	Location	Cross-Street	Nearest Cross Street
	Offense Type	Offense Type	<p>NYPD Compstat reports on:</p> <ul style="list-style-type: none"> <li>• Murder, Rape, Robbery, Fel. Assault, Burglary, Gr. Larceny, G.L.A.</li> <li>• Transit, Housing, Petit Larceny, Misd. Assault, Misd. Sex Crimes, Shooting Vic., Shooting Inc.</li> </ul> <p>Can discuss exact Level of Offense Hierarchy to Consider</p> <ul style="list-style-type: none"> <li>• Severity is embedded in Typology</li> </ul>
	Offense Type	Drug/ NonDrug	Event is Drug or NonDrug Related
	Offense Type	Drug Offense	Depictive of Specific Drug and Level of Offense
	Offense Type	Dispatch Record	Dispatch Record potentially provides auxiliary information not discretely captured elsewhere (Does not have to be linked to a criminal complaint. What time and the address on the dispatch record)
<p><u>Sources:</u> NYPD</p> <p><u>Levels:</u> By incidence level, Place Block group code and Census Tract Code on each incident record</p>			

# Data – Dimensions

## The Parole/ Probation Population In Existence

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
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		# of Parolees, # Individuals on Probation by Type of Past Offenses	Provides Parolee/ Probation Type
		Average # of Past Offenses	Count
		Average Time Since Last Offense By Type	Duration since Last Offense
		Average Frequency of Past Offense By Type	“Volume” of Crime
		(What level is this data available? What about precinct level? Are you saying that NYPD will not have access to probation/parole data . We just want to be clear? )	
		<u>Sources:</u> The New York City Dept. of Corrections , New York State Division of Criminal Justice Services, New York City Dept. of Probation, New York State Division of Parole	
		<u>Levels:</u> ???	

# Data – Dimensions *(Keystats will acquire this data)*

## The Geography/ Area In Existence (Demographics)

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION	
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		RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS	Wealth of Geography	
		PLACE OF BIRTH	--	
		MEDIAN INCOME IN THE PAST 12 MONTHS	--	
	Residence Last Year - Migration	GEOGRAPHICAL MOBILITY IN THE PAST YEAR	--	
	Journey to Work	MEANS OF TRANSPORTATION TO WORK	--	
	Children - Relationship	POPULATION UNDER 18 YEARS BY AGE	--	
		HOUSEHOLD TYPE (INCLUDING LIVING ALONE) BY RELATIONSHIP	--	
	<u>Sources: Keystats we utilize Bureau of Census &amp; other data sources to gather this type of information</u>			
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	Households - Families	FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN UNDER 18 YEARS	--
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	“	MARRIAGES ENDING IN WIDOWHOOD	--
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# Data – Dimensions

## Policy Factors Impacting Risk For Crime

DIMENSION	CATEGORY OF ELEMENTS	ELEMENT	DESCRIPTION
RISK-POLICY			
	Resources	Annual Budget – Patrol Cars Tours	--Dollar amount expended on Patrol Car Tours
Dropping this	Special Events	Any Special Events	Events at Jacob Javits Center (Auto/ Computer/ Boat Show), Holidays, etc.
	Tactics	Stop & Frisk ( # stop & frisk events)	--
	Resources	# patrol cars ( ? level ....annually)	--
	Resources	# officers ( ? level....annually)	--
	Resources	Avg years experience of officer ( ? level....annually )	--
	Resources	Avg # arrests or # of arrests (? level ....annually)	--
	Resources	Avg # civilian complaints or # of civilian complaints (? level....annually)	

Sources: NYPD  
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