BID-BASED PRIORITY SIGNAL CONTROL IN A CONNECTED ENVIRONMENT

A Thesis

by

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ABSTRACT*

Demand-responsive traffic signal control, like actuated signal control and adaptive traffic signal control, aims to provide efficient movements to road users. Although traffic control signals often treat vehicles as homogeneous objects, in reality road users' value of time (VOT) may vary depending on their situation. However, little research has been conducted in signal control methods that account for individual differences in VOT. This research introduces the concept of a bid-based priority signal control (BBPSC), a traffic signal control method that considers individual differences in VOT via bids. Within BBPSC, drivers can bid for a green signal indication in a connected environment. In the first phase of research, the author addressed key elements of such a concept. In asymmetric simple exclusion process (ASEP) with two conflicting movements, an algorithm extended a green interval as long as the cumulative opportunity loss observed in stopped movements remained less than the value that would have been lost through the termination of that green interval. BBPSC prioritized high bidders and resulted in a greater subjective user benefit compared to a pre-timed equivalent. In the second phase, the applicability of BBPSC was further investigated with a four-phase signal controller using microsimulations in PTV Vissim. While BBPSC produced approximately 70 percent longer queues than non-bid-based priority

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signal control (NBBPSC) in undersaturated conditions, the new control method achieved a smaller delay for high bidders on average, providing user benefit for high bidders. Extremely high bidders experienced a more than 90 percent decrease in delays with BBPSC when measured against NBBPSC. These results proved that typical four-phase traffic control signals can be operated by an algorithm based on bids from road users. Future work should investigate the optimal values of key input variables of BBPSC, especially in highly saturated traffic conditions.

DEDICATION

I dedicate this work to my grandparents who always cultivated my curiosity in my childhood: Masaaki Iio, Kinue Iio, Hiroshi Yonezawa, and Keiko Yonezawa.

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Contributors

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NOMENCLATURE

AASHTO	American Association of State Highway and Transportation Officials
ASEP	Asymmetric Simple Exclusion Process
BBPSC	Bid-Based Priority Signal Control
COM	Component Object Model
CV	Coefficient of Variance
HOV	High-Occupancy Vehicle
LOS	Level of Service
M	Mean
MAH	Maximum Allowable Headway
NEMA	National Electrical Manufacturers Association
QOL	Quality of Life
QOS	Quality of Service
ROW	Right-of-Way
RTOR	Right Turn on Red
SD	Standard Deviation
SCAT	Sydney Coordinated Adaptive Traffic
SCOOT	Split, Cycle and Offset Optimisation Technique
SVTT	Subjective Value of Travel Time
TSP	Transit Signal Priority

USD	United States Dollar
V2I	Vehicle-to-Infrastructure
V2V	Vehicle-to-Vehicle
VEH	Vehicle
VOT	Value of Time
VPH	Vehicles per Hour

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1. INTRODUCTION*

One of the key purposes of traffic engineering is to promote efficient movements of people and goods (*1*). Aside from drivers' subjective discomfort, it is important for transportation systems to achieve high efficiency from an economic standpoint because drivers' time has economic value, and delay can result in opportunity loss for drivers' economic activities (*2*). When road users experience excessive delays, a cumulative opportunity loss decreases economic activity even if it is not immediately visible. In fact, the American Association of State Highway and Transportation Officials (AASHTO) recommends that engineers consider travel time as a key factor of user benefit (*3*).

In the field of transportation, efforts have been made to minimize losses that increase user cost. Since only limited numbers of vehicles can traverse a roadway segment in a given time, road networks are often treated as two-dimensional. Hence, vehicle control comes down to effectively allocating a three-dimensional space-time (area + time) to conflicting traffic demands.

1.1. Fixed-Time Control

As poorly-timed traffic control signals can cause congestions in urban areas (*4*), the importance of efficient traffic signal controls has been increasing with the progress of urbanization. At signalized intersections, the overall quality of efficiency of

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movements, approaches, and intersections are measured as the level of service (LOS). Varying from A, the best, to F, the worst, LOS is a function of control delay (*5*). Traffic control signals are used to manage conflicting movements of road users at intersections. Traffic control signals assign right-of-way (ROW) through a series of “phases,” which consist of a green interval, yellow change interval, and red clearance interval. When guided by traffic control signals, vehicles can only proceed when they receive green signal indications, with the exceptions of yellow change intervals, right turns on red (RTOR), and flashing modes. Because yellow change intervals and red clearance intervals typically have fixed time periods, the total seconds of green intervals (green time) per hour is limited to 3,600 seconds minus the total seconds of effective red time when signal timings are fixed. Such available green time is referred to as effective green time and is a function of the number of signal phases and cycles per hour. Accordingly, the efficiency of a signalized intersection is determined by the allocation of limited effective green time to different movement groups.

An early form of traffic signals are called fixed-time (pre-timed) traffic control signals. These are simple traffic control signals that use fixed phase patterns with fixed cycles. With fixed-time signals, the lengths of the yellow change, red, and green intervals remain the same during a designated time period. In a fixed-time signal control, the cycle length is optimized using methods developed by scholars such as Webster (*6*), as presented as **Equation 1**.

$$C_o = \frac{1.5L + 5}{1 - \sum \frac{q_i}{s_i}} \quad (1)$$

where: C_o = optimum cycle length (seconds);

L = the total lost time per cycle (seconds)

q_i = flow rate (vehicles per hour, or vph)

s_i = saturation flow rate (vph)

By using an optimized cycle length, a fixed-time traffic control signal controller can provide for the efficient movement of vehicles. However, optimal efficiency is only achieved when the flow rate of the intersection is constant. In real traffic, flow rates and vehicle arrivals fluctuate. Therefore, demand-responsive traffic signal control methods have been developed to achieve local efficiency of traffic movements. Major practices include actuated signal control and adaptive traffic signal control.

1.2. Actuated Control

Actuated signal operations consider real-time traffic demands to some extent. Unlike fixed-time signal controllers, actuated traffic signal controllers have detection devices to “register” approaching vehicles. Actuated signal operations use vehicle detectors and extend green intervals based on the existence of vehicles approaching the signal as a function of needs (*7*). Conventional actuated signal controls use the concept of maximum allowable headway (MAH), which refers to a headway with which an actuated controller allows vehicles to “call” extended green intervals for the movements receiving green time at that moment (*8*). In other words, if a new vehicle approaches the intersection right after the previous vehicle that proceeded through a green indication, the signal controller extends the green time so that the new vehicle can also go through the intersection without stopping. The length of MAH gets shorter over time, making extensions more difficult if the movement has already been receiving extended green time. The current green interval is terminated when there are no following vehicles within the MAH ("gap out") or an extended green time reaches a maximum green time ("max out"). While actuated control attempts to give longer ROW to the movements with larger demands in the long-term, it treats all vehicles in a given intersection homogeneously since headway is the only factor considered.

1.3. Adaptive Control

To better serve high and complex traffic demands, researchers have developed other demand-responsive traffic signal control methods that detect current traffic states and consider predicted future traffic behavior (*9*). Specifically, when real-time traffic is used as input for second-by-second adjustment of signal timings, the control method is referred to as adaptive control (*5*). Since remote sensing data have become increasingly available, adaptive signal control has more potential to improve efficiency at intersections than conventional signal control methods. Because adaptive signal control is a broad concept (*10*), many algorithms for this type of signal control have been developed (*11*), such as the Sydney Coordinated Adaptive Traffic (SCAT) system (*12*), the Split, Cycle and Offset Optimisation Technique (SCOOT) (*13*), PRODYN (*14*), and

RHODES (*15*). These algorithms use vehicle detectors to read the real-time traffic state and use the findings to estimate future traffic states.

1.4. Elusive Nature of Value of Time

All of the concepts mentioned above share the same philosophy: provide efficient movement to road users because the loss of time is considered a loss of opportunity. However these signal control methods treat vehicles homogeneously in that they attempt to minimize vehicle delay or queue length. In this way, vehicle-based optimizations assume that values of time (VOT) are the same among road users. However, in reality, personal VOT varies within the same individual, depending on their situation. Therefore, all of the aforementioned traffic control methods do not achieve optimal efficiency as they disregard individual VOT. For example, actuated signal control is not the best tool to maximize user benefit because (i) each vehicle occupant's VOT does not affect headways, and (ii) since multiple vehicles in a movement receive signal indications, vehicles in each movement should be treated as a group. That being said, a traffic control method that considers such differences or variations of VOT may be more ideal.

Actually, there are existing concepts that share the same philosophy: signal priority should be given to vehicles whose time is more "valuable" than others. At a corridor level, Wong (*16*) proposed the concept of roadway reservation, a system in which road users can book roadways in advance based on system optimization rules that prioritize transits and high-occupancy vehicles (HOVs). Today, HOV lanes exemplify this idea: vehicles can drive in less congested lanes if they are carrying multiple occupants. HOV lanes set a minimum threshold of expected VOT per vehicle while easing traffic congestion. Even at signalized intersections, there are practices that prioritize certain types of vehicles over other vehicles. Major examples include preemption and transit signal priority (TSP). Preemption gives emergency vehicles a ROW, whereas TSP adjusts signal timings to offer a ROW in a timely manner to public transit, such as buses and light rails (*17*). Since transit vehicles tend to have more occupants than other vehicles, TSP prioritizes transit vehicles over other vehicles in an attempt to reduce the total amount of opportunity cost to society. TSP and actuated or adaptive controls are not mutually exclusive because TSP can be a part of actuations and an adaptive signal control (*18*).

The idea of “person-delay” tries to capture delay per person. Unlike conventional delay measured “per vehicle,” person-delay is measured “per person.” Considering that the individuals are the ones who experience opportunity losses due to traffic, it is reasonable to consider person-delay when possible. Some researchers have proposed TSP methods to minimize person-based delay through adaptive signal control (*19*, *20*), but it may be ideal to extend the concept of person-delay to individual differences in time valuations among vehicle occupants in signal operations. This is because subjective user benefits contribute to individuals’ quality of life (QOL). It is, in fact, difficult to calculate individual subjective values of travel time (SVTT) precisely because SVTT can vary so greatly among road users. SVTT can even vary for an individual road user, depending on the urgency of their situation. In addition, the subjective valuation of user benefit is not necessarily proportional to the length of time saved (*21*). Rather, user benefit can be affected by various factors such as trip purpose, trip length, and surplus time and may have a nonlinear relationship (*22*). For example, when an individual has an important meeting in five minutes and is still stuck in traffic, SVTT may be more expensive for that individual at that time than for that same individual on a lazy Sunday.

1.5. Applications of Bids

Considering that money can be a unit of value (*23*), it may be reasonable to use bids from road users as a measure of "true demand." This practice could be an effective tool in achieving smaller opportunity loss and a higher quality of service (QOS) for individuals. Although the summation of individual willingness to pay is not always equal to the social price of time (*24*), bids can convey an individual's SVTT to some extent since money functions as a unit of value. Utilizing this concept, drivers in a hurry can receive the ROW sooner than they would with conventional signals if they value their time enough to pay for a shorter delay. The amount of money drivers are willing to pay for a green indication could be a better measure of "true demand" than the current systems in use. For example, a road user might be willing to pay five United States dollars (USD) to avoid red indications when this would allow them to make it to an important meeting on time.

Some researchers have explored the feasibility of roadway reservation in a connected environment without traffic control signals. Sometimes, such procedures involved auctioning off time spots to vehicles entering intersections. For example, Schepperle and Böhm (*25*) proposed the idea of distributing time slots for vehicles approaching an unsignalized intersection and reported reduced average waiting time with their method as compared with conventional signal control. In their framework, drivers were able to reserve the ROW within an intersection when their "requests" were approved in the auction which allowed one vehicle at a time per direction to request a time slot. Dresner and Stone (*26*) presented a similar method using a tile-based autonomous intersection management system without conventional traffic signals. In their system, drivers reserved their paths within an intersection in such a way that ensured vehicles did not occupy the same spatial tile at the same time. Because their tile-based priority control enabled more vehicles to enter an intersection at the same time, it would be extensible to intersections with larger numbers of lanes and spatial areas. Vasirani and Ossowski (*27*) on the other hand, envisioned an unsignalized intersection treated as a marketplace where vehicles could trade their ROW reservations based on bids. They found that higher bids, on average, resulted in shorter delays.

These studies have shown that, ultimately, intersection conflict management would not require traffic control signals in a situation in which all road users achieve perfect inter-user communication. Yet it is worth exploring signal priority control in the context of bidding because it could take decades to see completely connected signal control systems. Also, intersections must manage non-motorized users as well.

At signalized intersections, Carlino et al. (*28*) simulated aggregated trip times with auction-based priority management schemes in transportation networks in four cities in the United States. In the simulation, drivers were able to place bids to receive the ROW, however the bidding method was not described in great detail. Their findings indicated that an auction method reduces trip time. Later, Mashayekhi and List (*29*) suggested using Q-learning to optimize bid amounts and simulated transportation network travel times. The reinforcement learning algorithm resulted in shorter average travel times as the experiment continued.

Although existing studies have demonstrated interesting implications, the research conducted thus far on roadway reservation has always assumed environments in which vehicle movements, positions, and speeds are fully predictable. However, a perfect vehicle-to-vehicle (V2V) or vehicle-to-infrastructure (V2I) connectivity is not likely to be achieved in a single day. Because bids from all vehicles are not a prerequisite of bid-based signal control, this method has the potential to be used even in an era in which the technology penetration rate has not reached 100 percent. Even in such an environment, it may be possible for signal priority control to provide larger flexibility as well as a good degree of coordination if vehicles are permitted to place bids prior to joining queues. In addition, it is still unclear how much delay bidding would contribute at an intersection, since previous studies have compared aggregated travel times in transportation networks.

In order to address these issues, this thesis approaches the characteristics of bid-based priority signal control (BBPSC) through two research phases: concept and microsimulation. In the first phase, the author introduces the concept of BBPSC in a connected environment, discusses its key elements, and demonstrates its potential effects on user benefit and queueing delay in comparison with a traditional pre-timed signal control at an isolated intersection. In the second phase, the characteristics and feasibility of BBPSC are assessed through microsimulations with more realistic settings. Specifically, the algorithm is extended for a traffic signal controller that has more than two conflicting phase groups at an isolated intersection. In the end, the author discusses the results and makes remarks on the potential future applications of BBPSC.

Throughout this research, the term “user benefit” refers to a decrease in opportunity loss—which is expressed as the “loss of value” in BBPSC—of an alternative case from that of the base case. For example, if the opportunity loss of an alternative case is six and that of the base case is eight, the user benefit of the alternative scenario is two as road users can cut their opportunity cost by two in the alternative case.

2. CONCEPT*

This section introduces the concept of BBPSC. At intersections, increased user benefit for one movement often results in a decrease in user benefit in conflicting movements. In other words, giving green intervals to one movement will result in a longer red interval time for the conflicting movements. Therefore, at an intersection user benefit should be sought in relation to the conflicting movements. This means that signal priority is a matter of green time allocation to each conflicting movement per unit time. Therefore, it is reasonable to arrange green intervals by comparing the expected sum of opportunity loss borne by conflicting movement groups within bidding horizons. This method is founded on the idea that a green interval should be extended as long as the opportunity loss currently observed in the stopped movement is less than the value that would be lost by terminating the current green interval. For example, when there are only two conflicting movements at an intersection, Movement A (ΦA), a movement currently in a green interval, and Movement B (ΦB), a movement currently in a red interval, the current green interval for ΦA is extended until the cumulative opportunity loss actually observed (or the expected opportunity loss for the next vehicle arrival) in a red interval (ΦB) exceeds the expected opportunity loss for ΦA. This is a core principle of BBPSC as **Figure 1** illustrates an example case of this concept. Here, opportunity loss

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is expressed as bids multiplied by the cumulative delay for each vehicle. The lines are theoretical total amounts of opportunity loss when a green interval was terminated at the moment of calculation. In this case, ΦA would experience larger opportunity loss compared with that of ΦB if the current green interval ended after less than 48 seconds ("too short"). On the other hand, the cumulative opportunity loss in ΦB would surpass that in ΦA if the green interval exceeded 48 seconds ("too long"). Therefore, it is reasonable to end the current green interval for ΦA after 48 seconds. BBPSC takes advantage of the characteristics of the opportunity losses for the two movements. A green interval becomes more likely to be terminated as time goes on because bids accumulate in ΦB while they do not necessarily have an increasing trend in ΦA. In ΦA, bids are not counted once the vehicle passes through the intersection. Since the opportunity loss for ΦB monotonically increases, a green interval is likely to get terminated after a vehicle with a relatively high bid goes through the signal. The minimum and maximum green intervals can be set if necessary.

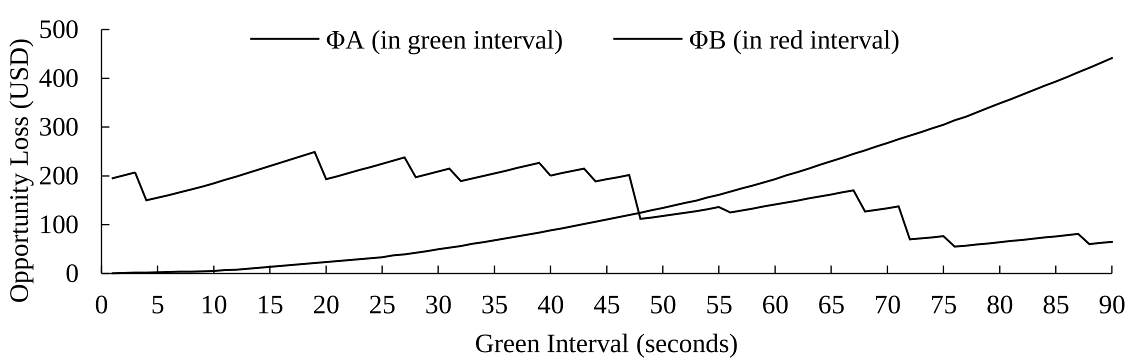


Figure 1. Opportunity loss as a function of a green interval (Iio et al., 2019).

The rest of this section discusses several key elements that should be considered when introducing bidding to priority signal control (**Table 1**).

Table 1 Key variables and settings in BBPSC (Iio et al., 2019)

Variable	Potential setting
Bidding horizon	Any value
Bidding type	Open/blind
Bidding timing	One-time/multiple-time
Expected red interval	Mean/median/mode
Minimum green interval	Any value
Maximum green interval	Any value
Bidding range	Free/in-range
Payment amount	Any value

2.1. Bidding Process

BBPSC intends to provide drivers with opportunities to increase their benefits. Because it takes multiple vehicles into consideration, bids are treated as groups when signal decisions are made. The maximum influence of each bid can be proportional to its range and inversely proportional to the number of total bids. In other words, a bid can have a stronger influence when there is a smaller total number of bids compared with the person's bid. Likewise, each bid would be diluted when there are many other bidders. For instance, if someone bids nine United States dollars and others bid two United States dollars in total, the person bidding nine United States dollars is likely to get the desired indication. A road user, however, cannot bid nine United States dollars if the maximum bid is limited to one United States dollar per bid even when they are willing to pay more than one United States dollar.

2.2. Vehicle Detection

BBPSC requires vehicle speeds, locations, and bids in real-time. In a connected environment, these data can be acquired by vehicles themselves and transmitted to a bid clearing terminal. Detectors can be placed on the road or on the signal itself as needed.

2.3. Bidding Horizon

Like other priority signal control methods, BBPSC captures bids from vehicles within its bidding horizons, the area where bids are effective. The appropriate length of a bidding horizon depends on characteristics of traffic in the areas, but it should not only be short enough to predict vehicle arrivals with an allowable accuracy but also be long enough to gather information on vehicles that could arrive in the near future. While little research has been done on determining the best bidding horizons, two or three cycles may be a feasible starting point because some other priority signal control algorithms have worked well with these planning horizons (*19, 20*).

2.4. Bidding Type and Timing

There are different types of bidding: open and blind. Open bidding refers to situations where bidders are aware of other bids whereas blind bidding keeps individuals' bids secret from other bidders. Open bidding is useful in that it provides bidders opportunities to pay as little as possible to get what they want. Contrary to open bidding, blind bidding does not provide bidders with opportunities to adjust their bids based on others' bids.

Another classification of bidding is the number of times a bidder can place a bid: one-time and multiple-time. Although multiple-time bidding provides liquidity to bidding markets, the author recommends one-time blind bidding at one location as a standard because it keeps signal decisions stable. If drivers can place bids multiple times, signal priority decision making can be reversed frequently. Also, one-time bids are more likely to reflect drivers' original willingness to pay because one-time bids are in ratio scale, which is a higher level of measurement compared with ordinal or interval scales used in open bidding.

Because it might not be safe for drivers to manually place a bid every time, bids should be set in vehicles before they approach a signal controlled by bids. For example, one-time open bidding can be implemented in a connected environment where signal controllers communicate with individual vehicles, which should have some reaction criteria, including a manual bid input by voice or a pre-set bidding function expressing the bidder's time valuation. In a connected environment, the bidding system may be able to provide drivers the information on the expected relationship between a bidding value and shortened time before they place bids.

2.5. Range of Bids

There are two options for the bidding range: free bidding and in-range bidding. While free bidding allows signals to achieve free markets, it could also cause initial queue delay due to abnormal bids, especially in signal networks where signals are close to one another. The bidding range has a large influence on the system's stability and effectiveness. If the range is too small for the number of bids in the bidding horizons, the power of a single bid could become too insignificant, which could make the bidding system itself less meaningful.

As long as the range is determined based on its potential effects, potential bid distributions at the location should also be investigated because they depend on each other. In addition, once BBPSC is introduced at an intersection, the bidding value distribution may eventually converge to a certain value at the location as a result of repeated bidding attempts by drivers.

2.6. Expected Red Interval and Certainty Function

With BBPSC, the cycle length is not fixed, but an expected red interval should be determined as an input variable for movements receiving green indications. Unlike the opportunity loss of vehicles in a red interval, fluctuations in vehicle speed may change the opportunity loss in the movement currently receiving a green interval. For example, if a red interval lasts for R seconds, a vehicle stopped at the beginning of the red interval is likely to lose R seconds, whereas a vehicle stopped ten seconds later is likely to wait only for $R - 10$ seconds in addition to decelerations and the start-up time lost. In other words, bids from vehicles closer to the signal are more crucial than those from vehicles further away. A similar constant was also used by Zen et al. (*19*).

Wolput et al. (*30*) have developed formulas for optimal cycle length with TSP at intersections. Although they may be useful, it is not possible to set the exact waiting time length since green intervals are subject to change in BBPSC. While this paper uses an arbitrary value as the expected red interval in simulations, engineering studies should be conducted to find feasible expected red intervals to use.

2.7. Minimum and Maximum Green Intervals

It is important to consider any existing pedestrians since they require a certain amount of the minimum green time to cross the streets. The maximum green interval can be introduced if road operators want to limit the flexibility of BBPSC.

2.8. Payment Amount

Determining the payment amount as a result of bidding would play a key role in the concept. In BBPSC, the outcome is not necessarily a dichotomy of “success” or “failure,” but can be gradient because high bidders sometimes will have to stop or slow down until the vehicles in front of them are discharged.

In the case of free-riding, vehicles could receive the desired indication because of others’ bids. For example, Vehicle a_1 in ΦA could receive an extended green interval not because of a one United States dollar bid it placed, but because Vehicle a_2, a vehicle closely following Vehicle a1, placed a bid for nine United States dollars. In this case, it might not be clear whose bid obtained the desired indication, especially when the conflicting movements bid a close value.

Although this situation does not happen when bids are only placed in a semi-actuated intersection, successful bids accompanying a stop may also be debatable. If 20 vehicles (Vehicle b_1–Vehicle b_{20}) with no bids in ΦB are in the queue receiving a red indication and an arriving vehicle, Vehicle b_{21}, places nine United States dollars to get a green indication, the signal could start discharging the queue in ΦB until new bids from ΦA exceed the expected opportunity loss of ΦB. This means Vehicle b_{21} possibly receives a red indication again before it gets discharged. In such a case, Vehicle b_{21}, however, still received some benefits from its bid regardless of how the driver would feel because the bid still made the vehicle proceed. Some road users might not be willing to pay when situations like this occur.

Overall, the payment method should be as simple as possible so that every user can easily understand how the system works; otherwise, the market penetration rate would remain low. It might be possible to calculate the degree of contribution for each bidder so that each bidder can pay based on their "influence." This idea, however, may not be feasible for real implementation unless the majority of bidders can intuitively understand how the calculation works.

A practical solution to this problem is to make bidders pay regardless of the results since all bids are more or less woven into calculations. This "all-in" policy is not only simple but also has the potential to keep the computational load of a clearing system low as it discourages drivers to place less important bids.

A bidding scheme could be a good source of revenue for road authorities or other governmental organizations operating signalized intersections if the payment system is designed properly. Theoretically, it may sound ideal that road users who gave up their time for higher bidders receive money from the higher bidders. However, the author would not recommend this since more congestion could be caused if road users try to get out on roads and wait at intersections for the purpose of accumulating money.

2.9. Potential Effects

BBPSC potentially generates turbulence in traffic and affects drivers' bidding behaviors.

2.9.1. Traffic

Exactly how BBPSC affects the existing traffic is still unknown. With a bidding signal control, signal timing decisions are made based on bids, thus the system could potentially cause turbulence in traffic especially when the bidding value distribution deviates to a large extent from that of the arrival distribution without bidding control. This might not be a big problem at an isolated intersection, but this effect should be taken into consideration when introducing BBPSC to intersections that are close to one another.

There is a possibility that drivers rarely place bids on a daily basis, but road operators should be aware that traffic turbulence could frequently be caused on roads with a high volume of traffic even if bidding is rare behavior for individual drivers. For example, the likelihood of placing a bid is as follows, when each driver places a bid once out of 100 opportunities (**Equations 2-3**):

$$P(A) = \frac{1}{100} \qquad (2)$$

Yet, the probability that an intersection dealing with 100 vehicles per cycle experiences at least one bid in a cycle is expressed as follows:

$$1 - P(\overline{A})^{100} = 0.63 \qquad (3)$$

This implies that the signal is more likely to experience at least one bid per cycle than having no bids in a cycle.

2.9.2. Bidding Behaviors

Bidding behaviors are worth researching not only because people may change their bidding motivations and tactics based on their experiences, but also because bidding distributions can influence the effects of BBPSC.

Bidders may be able to anticipate the probability of getting the desirable signal indication as a function of bids after a certain time period. A driver who goes through an intersection every day may develop a sense of confidence in a bidding value that is likely to result in the desired signal indication. Because bidders will try to place the lowest bid that obtains the desired signal indication, bidding values at each intersection have the potential to get closer to what a fixed-value priority control offers, but little study has been conducted into this possibility.

If drivers change their behavior based on their experiences, there is a possibility that BBPSC loses its benefits without a constant variable optimization.

2.10. Simple Demonstration

This section aims to introduce the concept of BBPSC and discuss its key elements; thus, the author decided to use the asymmetric simple exclusion process (ASEP), a plain method to simulate directional traffic flows (*31*) as a simulation tool to assess the effects of BBPSC on user benefit and delay. This model simplifies vehicle movements while keeping the moving trends and was thought to be suitable for early-stage discussions. In the simulations, the maximum queue length in a stopped movement

(ΦB) and opportunity loss were compared between BBPSC and pre-timed control, whose green interval was arranged to be that of the average green interval in BBPSC.

2.10.1. Settings

In the simulations, vehicle locations and speeds are assumed to be known in real-time. Vehicle movements, an example of which is shown in **Figure 2**, were governed by the following rules:

(i) Each number referred to the state of a vehicle in the cell (zero: vacant; positive numbers: vehicle existence and bid).

(ii) The horizontal (x-) axis gave vehicle locations (left: downstream; right: upstream) and vehicles moved to the left cell every second unless the left cell already had filled up with another vehicle or the vehicle received a red indication at the origin of the x-axis, which was an intersection.

x -axis (seconds)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vehicle number		1				2				3				4				5	
Bid (USD)		1				1				1				1				1	
Time (seconds)	*t*	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
	t + 1	2	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
	t + 2	3	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
	t + 3	4	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
	t + 4	5	2	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
	t + 5	6	3	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
	t + 6	7	4	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
	t + 7	8	5	2	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
	t + 8	9	6	3	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
	t + 9	10	7	4	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
	t + 10	11	8	5	2	0	0	1	0	0	0	1	0	0	0	1	0	0	0

Figure 2. An example of the ASEP simulating queueing delay (Iio et al., 2019).

Although the simulations did not precisely illustrate variables such as vehicle lengths, gaps, the effects of queue spillback, and deceleration, the ASEP was still thought to be a feasible simulation tool, considering that the purpose of this paper was to introduce a conceptual framework of BBPSC and that other variables can vary depending on the situation. The author considered the number of stopped vehicles as a queue length. This practice was reasonable since vehicle arrival was assumed to be uniform in this experiment.

The following algorithm (**Equations 4-7**) was performed:

$$G = G_{min}(E(LV_A) < LV_B) - 3 \qquad (4)$$

$$E(LV_A) = \sum_{i=1}^{n} b_i t_i f_{certainty_i} \quad (5)$$

$$t_i = E_{red} \quad (6)$$

$$LV_B = \sum_{i=1}^{n} b_i d_i \quad (7)$$

where: G = green interval (seconds);

$G_{min}(x)$ = minimum green interval that satisfies x (seconds);

$E(x)$ = expected value of x;

LV_{Φ} = loss of value in Movement Φ (USD);

n = number of vehicles within a bidding horizon;

b_i = bid from the vehicle i (USD);

t_i = individual weighed time for the vehicle i (seconds);

$f_{certainty_i}$ = certainty function;

E_{red} = expected red interval ($0 \le E_{red} \le 62$) (seconds);

d_i = delay of the vehicle i at the time of calculation (seconds)

Other settings were as follows.

- The intersection had two conflicting movements: Movement A (ΦA) and Movement B (ΦB) without pedestrians;

- A simulation started when a green time for ΦA began;
- Bidding horizon = 2,640 feet/each;
- Simulation period = a green interval;
- Approaching driving speed = 40 miles per hour (mph);
- Arrival headway = 4 seconds/veh for each movement (assumed a uniform distribution);
- Minimum green time (G_{min}) = 0 seconds;
- Maximum green time (G_{max}) = ∞ seconds;
- Yellow change interval (y) = 2 seconds;
- Red clearance interval (ar) = 2 seconds/time;
- The expected typical red interval for a movement = 58 seconds (**Figure 3**);
- The bidding value distribution in BBPSC is shown in

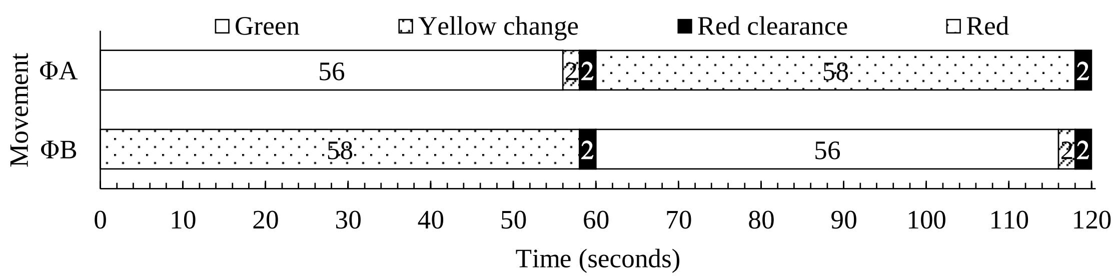


Figure 3. Typical phase settings of a two-phase signal controller (Iio et al., 2019).

Table 2 Bidding value distributions (Iio et al., 2019)

Bid (USD)	0.00	0.50	1.00	1.50
Frequency	70.00 %	10.00 %	10.00 %	10.00 %

Bids from ΦA were multiplied by a certainty factor ($f_{certainty}$) to introduce the probabilistic nature of the expected typical red interval for a movement. The factor was 1.00 for 0–924 feet (0–63 seconds); 0.75 for 939–1,775 feet (64–121 seconds); and 0.50 for 1,789–2,640 feet (122–180 seconds).

With BBPSC, green time for ΦA was extended until three seconds before the loss of value in ΦB, the movement receiving a red indication, exceeded the expected loss of value for ΦA. This setting made ΦB experience the maximum loss of value at the last second before it received a new green indication. In BBPSC, the same bidding distribution was applied to ΦA and ΦB. Simulations were repeated 50 times in each condition on Microsoft Excel 2016.

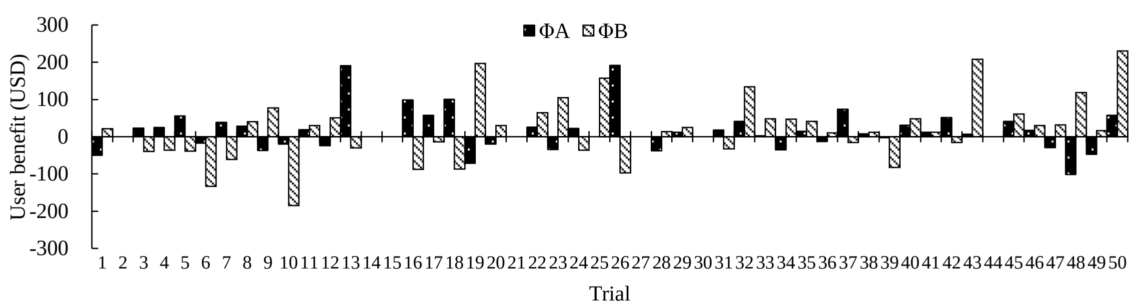
2.10.2. Results

The mean green interval for ΦA was 52.38 seconds. **Table 3** shows descriptive statistics in each condition. **Figure 4** pictures the user benefit with BBPSC throughout trials. **Table 4** shows the user benefit per green interval with BBPSC. **Figure 5** shows the maximum queue length in ΦB with BBPSC.

Table 3 Descriptive values in BBPSC and pre-timed control (Iio et al., 2019)

Item	Timing	*M*	*SD*	*Min*	*Max*
Green Interval for ΦA (seconds)	BBPSC	52.38	74.64	22.00	102.00
	Pre-Timed (*G* = 52 sec)	52.00	76.86	52.00	52.00
Expected Lost Value in ΦA (USD)	BBPSC	95.35	53.55	0.00	269.00
	Pre-Timed (*G* = 52 sec)	109.77	68.56	0.00	358.80
Lost Value in ΦB (USD)	BBPSC	128.60	106.29	18.50	769.50
	Pre-Timed (*G* = 52 sec)	145.98	141.21	0.00	927.00
Vehicles Passed in ΦA (veh, or vehicles)	BBPSC	14.14	4.19	7.00	27.00
	Pre-Timed (*G* = 52 sec)	14.00	0.00	14.00	14.00
Maximum Queue Length in ΦB (veh)	BBPSC	18.20	5.60	8.00	35.00
	Pre-Timed (*G* = 52 sec)	18.00	0.00	18.00	18.00

Note: *n* = 50; *M* = mean, *SD* = standard deviation, *Min* = minimum, *Max* = maximum.



Note: *G* = 52 seconds.

Figure 4. User benefit with BBPSC throughout trials (Iio et al., 2019).

Table 4 User benefit per green interval with BBPSC (Iio et al., 2019)

Movement	*M*	*SD*	*Min*	*Max*
ΦA	$14.42	$53.23	-$101.20	$191.90
ΦB	$17.38	$80.23	-$184.50	$230.50
ΦA + ΦB	$31.80	$80.43	-$204.20	$287.80

Note: *n* = 50; *M* = mean; *SD* = standard deviation; *Min* = minimum; *Max* = maximum.

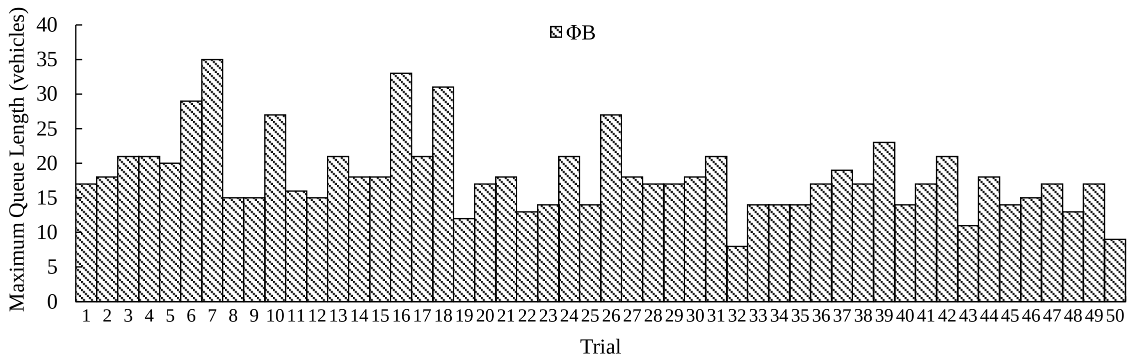


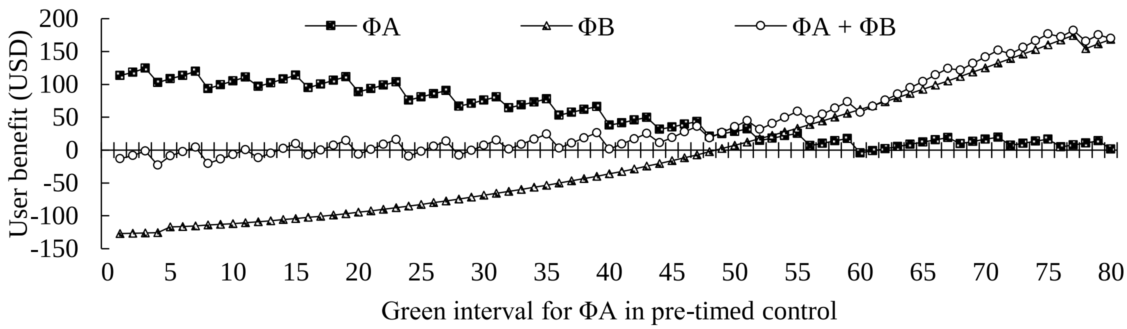
Figure 5. Maximum queue length in ΦB with BBPSC (Iio et al., 2019).

2.10.2.1. User Benefit

In relation to the pre-timed condition with a 52-second green interval, user benefit per green interval was increased by USD 31.80 on average with BBPSC, where the green interval ranged between 22 and 102 seconds. This is because BBPSC made room for adjustment whereas the pre-timed control had “zero-tolerance” for flexibility of the green time interval.

The large variances (coefficient of variance, or *CV* = 3.69 for ΦA; 4.62 for ΦB; and 2.53 for ΦA +ΦB) in user benefit indicated that there were trials where BBPSC could not provide user benefit in relation to the pre-timed control. Yet, BBPSC brought user benefit per green interval in 38 (74.00 percent) out of 50 trials.

Figure 6 illustrates the average user benefit in the two movements with BBPSC in relation to different green intervals for ΦA with pre-timed control. In the simulations, BBPSC found an optimal green interval (52.38 seconds). With BBPSC, both movements were likely to experience almost the same degree of user benefit because the algorithm prevented unreasonable opportunity loss for the entire intersection. The figure indicates that vehicle users in ΦA would not have benefited when a pre-timed control had a relatively short green interval and vice versa.



Note: *n* = 50 for every point.

Figure 6. Mean user benefit with BBPSC in relation to the green interval for ΦA in pre-timed control (Iio et al., 2019).

2.10.2.2. Queue Length

This study considered queue length as a function of queueing delay since vehicles arrived uniformly. The average maximum queue length in ΦB with BBPSC was 18.20 vehicles, which was close to that of the pre-timed control (eighteen vehicles). The value ranged from eight to 35 along with a green interval for ΦA.

When the queue length in ΦB reached 35, 33, and 31 vehicles in Trial 7, 16, and 18, respectively, the total user benefit was USD –22.70, USD 11.60, and USD 13.80.

2.10.3. Discussion

The ASEP simulations revealed that BBPSC achieved increased user benefit on average in relation to a pre-timed control with a similar green interval while keeping the average maximum queue length largely the same as the pre-timed equivalent. In other words, BBPSC increased the frequency of subjective user benefits. In addition, it balanced out the expected values of user benefit in the two conflicting movements. These results were not surprising because the algorithm intended to balance out the two conflicting movements' "equality."

2.10.3.1. Limitations and Recommendations

The research in this section was conducted within certain limitations. Here, the author mentions such limitations and makes future research recommendations.

First, it is recommended that further study be conducted into high-fidelity microscopic simulations. Although the ASEP model was useful to observe the moving trends of each vehicle as a particle in an initial observation, microsimulations should be conducted to investigate the effects of BBPSC because they show more realistic results based on a greater number of inputs such as decelerations, accelerations, and queue spillback with stochastic vehicle arrivals.

In addition, it is recommended that future studies investigate the effects of BBPSC for multiple cycles. Although the ASEP did not consider queue spillback precisely, there may be real situations where queue spillbacks should be maintained under a certain value. BBPSC has the potential to discharge relatively long queues automatically because the total bids and cumulative delay from a longer queue are likely to be larger than those from the shorter conflicting movements. This new type of signal control may be flexible and robust in this context. If this is always the case, long queues observed in the ASEP (e.g., Trials 7, 16, and 18) might not be a big problem over cycles. However, excessive queue spillbacks could cause initial queue delay at the intersection or adjacent portions of the road over multiple cycles. If BBPSC often creates long queues that result in severe delay, effective methods to control the effects of queue spillback should also be discussed. For instance, the length of queue spillback could be limited by installing some sort of queue length detection system or setting a maximum green time, whose value may depend on intersection geometries.

Furthermore, the effects of many independent variables should be investigated. Such variables would include vehicle arrival types, bidding distributions, traffic volume, degree of saturation, signal phasing, and the technology penetration rate.

This section introduced and discussed several key elements of a system of BBPSC. At this point, this concept is merely theoretical because it is currently not easy to introduce special devices at real intersections, but it is worth exploring the possibilities associated with BBPSC because this new type of control has the potential to give a better QOS to road users. The next section investigates the characteristics of BBPSC in microsimulations with more realistic signal settings.

3. MICROSIMULATION

The previous section introduced and discussed the concept of BBPSC with two conflicting movement groups as an example. A traffic signal controller extended a green interval until the realized opportunity loss (the sum of "vehicle delay multiplied by a bid from the vehicle" within a finite horizon) of a currently stopped phase group exceeds that of a phase group currently in a green interval (*32*). Using ASEP, the method sought green times that were neither "too early" nor "too late" in terms of system optimization, showing increased user benefits in relation to fixed-time signal control.

However, the simple demonstration was limited in that (i) vehicles were simulated as particles, (ii) vehicle arrival was uniform, (iii) the simulation period did not exceed one cycle, and (iv) the traffic control signal had only two-phases. Therefore, it is yet to be made clear whether BBPSC prioritizes high bidders well in real traffic situations. In particular, the algorithm did not support traffic control signals with more than two phases. Since signalized intersection often has more than two signal phases (*33*), it would be constructive to extend the algorithm so that it can control signals with more than two phases. However, because BBPSC aggregates bids by phase group, three or more signal phases make it unclear which phase group bids against which phase groups and at what time when the phase sequence is not predetermined. This difficulty in prioritization has been discussed since the earliest days of demand-responsive traffic control attempts (*9*, *34*). In addition, when the phase sequence or cycle length is not constant, the operation could result in smaller user benefits by having too many yellow change and red intervals (*18*, *34*).

To address these issues, this section:

(i) proposes a new algorithm for BBPSC that is compatible with signalized intersections that have more than two phases; and

(ii) investigates its feasibility in realistic settings.

To achieve these objectives, the author simulates stochastic vehicle arrivals over multiple cycles in microsimulation software and discuss the effects of the algorithms on delay, queue length, and user benefit. This section focuses on the algorithm and its performance but does not discuss how to construct such an infrastructure.

3.1. Methodology

This subsection explains the methodology including an extended algorithm and microsimulation settings. The main philosophy of the method is extending a green interval until the opportunity loss of one of the currently stopped movements (φ_x^2) exceeds the value of opportunity loss that is likely to occur due to the termination of the current green interval (φ_x^1). Based on this principle, the author introduced the following algorithm (**Equations 8-12**). As in the previous section, opportunity loss is expressed as the total bids multiplied by cumulative delay for each vehicle.

For every second, minimize $G(F)$ (8)

Subject to $G^x = G(\varphi_x^1 - \varphi_x^2)$ (9)

$$G^x_{min} \leq G^x \leq G^x_{max} \tag{10}$$

$$\varphi^o_x = \sum_{i=1}^{n_x} [\xi^x_i + (l_1 + l_2)] \tag{11}$$

$$\xi^x_i = b^x_i d^x_{i,j,k} \Delta^x_{j,k} \tag{12}$$

where: $G(F)$ = the green time that satisfies F (seconds)

o = the descending order of φ at the point of calculation {φ | 1, 2, 3, 4} (e.g., o = 1 for a movement group in green interval)

G^x = green time for the movement group x whose o = 1 (seconds)

φ^o_x = aggregated expected opportunity loss for the movement group x (USD)

x = movement group {x | A, B, C, D}

G^x_{min} = minimum green time for the movement group x (seconds)

G^x_{max} = maximum green time for the movement group x (seconds)

ξ^x_i = expected opportunity loss for the ith vehicle in the movement group x (USD)

i = vehicle identifier (ith vehicle from the approaching intersection in the movement group)

n_x = the number of vehicles in the bidding horizon of the movement group x

l_1 = start-up lost time (seconds)

l_2 = clearance lost time (seconds)

b_i^x = bid from the *i*th vehicle in the movement group *x* ($0 \leq b$) (USD)

$d_{i,j,k}^x$ = expected approach delay for the *i*th vehicle moving at *j* ft from the intersection at *k* mph in the movement group *x* ($0 \leq d$) (seconds)

Δ_j^x = certainty function for the vehicle moving at *j* ft from the intersection in the movement group *x* ($0 \leq \Delta \leq 1$)

Figure 7 illustrates φ as a function of time in a four-phase signal control. In the algorithm, the superscript *o* corresponds to the descending order of φ_x at that time. The largest φ (φ^1) represents expected opportunity loss of the movement group currently in green interval whereas φ^2, φ^3, and φ^4 are observed opportunity losses. From the definition, φ^4 always starts with zero when a new green interval starts. Suppose road users do not bid negative values and the rate of right turns on red is negligibly light, φ_x^o increases almost monotonically in relation to the time when $o > 1$ (when the movements accumulate "losses"). On the other hand, φ_x^o does not necessarily keep increasing over time when $o = 1$ (when the movement is in a green interval); thus, there is a time when φ^2 reaches φ^1. At such a moment, the algorithm "calls" new green interval for φ^2, which becomes the new φ^1.

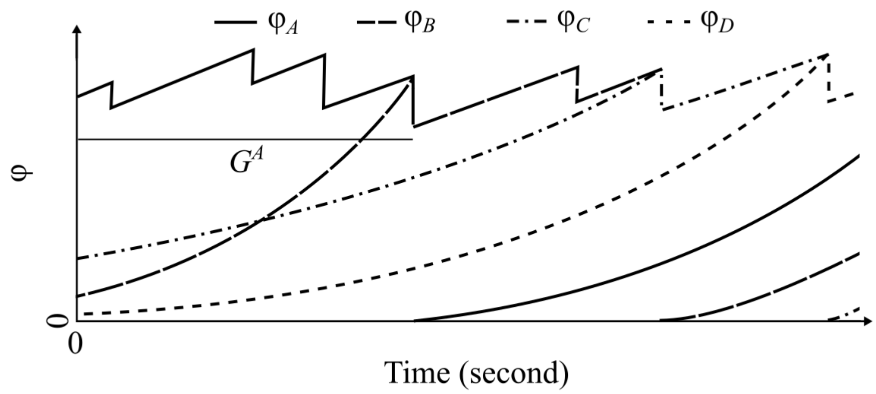


Figure 7. Transitions of φ as a function of a green interval of ΦA whose *o* =1.

Compared to **Equations 4-7**, the notable advancements of the extended algorithm (**Equations 8-12**) include:

(i) The new algorithms can control more than two phase groups; and

(ii) Minimum green time is introduced to avoid exceedingly frequent phase transitions.

When φ for each movement group has close values (e.g., φ^2 = USD 12.40 and φ^3 = USD 12.30), an algorithm could switch a phase too quickly right after φ^2 becomes φ^1. If a signal controller switches the phase too frequently, the signal would lose efficiency because the total lost time (*L*) per unit time will increase. To avoid too frequent phase alternation, a minimum green time was introduced in this algorithm. The expected approach delay (*d*) was calculated based on the expected red time for each movement group, which was assumed to be 95 seconds {120 - [120 – (5 × 4)]/4} on average. The certainty function accommodates the uncertainty of vehicle arrival due to potential speed fluctuation. It was a weight function that was inversely proportional to the square distance to the intersection; namely, the closer a vehicle to the intersection, the closer it was considered to the actual outcomes.

This adaptive traffic signal priority algorithm requires real-time information of bids, location, and speed of all vehicles in the bidding horizon. However, unlike some roadway reservation methods, this algorithm would not stop functioning even in a situation that some vehicles are not able to bid.

To assess effects on delay, user benefit, and queue length, microsimulations were performed on 64-bit Windows 10 using PTV Vissim 10.00-05 and Python 3.6 through a component object model (COM) interface; **Figure 8** is the flow chart of the algorithm. In the simulations, each vehicle had a unique "bid" value. The signal controller was assumed to have a perfect knowledge of vehicle bids, real-time location, and real-time speed. The Python scripts are shown in Appendix A-1.

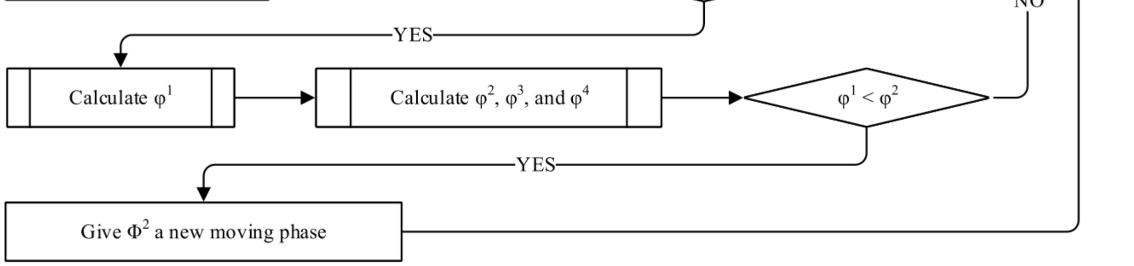


Figure 8. Flow chart of the procedure.

For simulations, a four-leg intersection was modeled after Anderson Street at Holleman Drive in College Station, Texas (**Figure 9**). At this intersection, Holleman Drive (west-east) was the major street whereas Anderson Street (north-south) was considered a minor street. In the figure, Φ indicates movement group numbering suggested by the National Electrical Manufacturers Association (NEMA) (*8*, *33*). In simulation scenarios, all approaches consisted of one through lane and one left turn bay. All left turns (Φ1, 3, 5, 7) were protected, meaning no left turns were allowed unless the conflicting movement groups were stopped by red signal indications.

Figure 9. Anderson Street (minor street) at Holleman Drive (major street) in College Station, Texas.

Table 5 lists detailed simulation settings and conditions. Φ1 indicates westbound left turns. Each experimental condition was simulated three times with different random seeds. The same random seeds were used for the same conditions in NBBPSC and BBPSC. In total, 210 simulations were run.

Table 5 Microsimulation settings

Item	Description
Basic settings	
Simulation period	An hour
Simulated facility	An isolated four-leg intersection with left-turn bays (Anderson Street at Holleman Drive in College Station, TX)
Major street	Holleman Drive (East-West)
Minor street	Anderson Street (North-South)
Lanes	Two 12-ft lanes for each approach (through and protected left-turn)
Phasing	Four-phase split phasing (ΦA = Φ1 + Φ6, ΦB = Φ3 + Φ8, C = Φ2 + Φ5, ΦD = Φ4 + Φ7)
Yellow change interval	3 seconds
Red clearance interval	2 seconds
Minimum green time (G_{min})	15 seconds
Left turn operation	Protected
Right turns on red (RTOR)	Allowed
Vehicle composition	Passenger cars (95 %) and heavy vehiles (5 %); one percent of the vehicles were "emergency vehicles"
Vehicle arrival	Stochastic
Vehicle movement ratio (left: through: right)	3:5:2
Vehicle speed	85th percentile speed: 30 mph for Hollemen Drive (major; EB-WB) and 35 mph for Anderson Street (minor; NB-SB)
Pedestrians	Nonexistent
Bid	·Bids were classified into 12-scale "*bid classes*" as follows: N = \$0.01, 1 = (\$0.01 <, ≤ \$0.10), 2 = (\$0.10 <, ≤ \$0.20), 3 = (\$0.20 <, ≤ \$0.30), 4 = (\$0.30 <, ≤ \$0.40), 5 = (\$0.40 <, ≤ \$0.50), 6 = (\$0.50 <, ≤ \$0.60), 7 = (\$0.60 <, ≤ \$0.70), 8 = (\$0.70 <, ≤ \$0.80), 9 = (\$0.80 <, ≤ \$0.90),10 = (\$0.90 <, ≤ \$1.00), and E = \$999.00 ·Regardless of bidder penetration rate, one percent of all vehicles ("*emergency vehicles*") had Bid Class E and bidded \$999.00
Bidding horizon	2,640 feet
Independent variables	
Hourly vehicle volume on the major street (Holleman Drive)	400 vph, 600 vph, 800 vph, 1000 vph, 1200 vph, 1400 vph, and 1600 vph
Bidder penetration rate	·The percentage of *bidders* (20 %, 40 %, 60 %, 80 %, and 100 %) ·Bidders' bids uniformly distributed from \$0.01 to \$1.00 ·A complementary vehicles were considered as *non-bidders*, which had Bid Class N (\$0.01)
Signal control method	NBBPSC and BBPSC
Dependent variables	
Vehicle delay (seconds)	
Queue length (feet)	
User benefit (USD)	The subtraction of the sum of (bid × delay) of every vehicle with non-BBPSC from that of BBPSC

The certainty function (Δ_j^x) was calculated as $[(2{,}640 - j)/2{,}640]^2$. BBPSC changed signal timings based on the proposed algorithm while NBBPSC adjusted the green time in the same way by ignoring bids (NBBPSC only considered cumulative waiting time). Delay was measured at the stop lines. The user benefit is the subtraction of the total loss value in NBBPSC from that of BBPSC. The data were analyzed with R 3.6.

This paper intends to understand the characteristics of BBPSC from multiple aspects, including delay, queue length, and user benefit. As non-parametric multiple comparisons with unequal sample sizes, Tukey–Kramer's honest significance tests (*35*) were performed on vehicle delay. To derive conclusions based on a combination of results supported by multiple statistical tests, the confidence level of each statistical test was set at 99 percent. This "Bonferroni correction" allows one to use up to five combinations of statistical tests to make a conclusion at a 95-percent confidence level ($\because$ $0.950 \leq 0.951 = 0.99^5$) (*36*).

3.2. Results

Figure 10 is a snapshot of a microsimulation, in which the stop line colors represent the color of signal indications and the white numbers indicate φ. In **A**, an emergency (black) vehicle on eastbound Holleman Drive (Φ5) approached the intersection. At this point in time, a green interval for eastbound Holleman Drive had already been extended. Having USD 999.00 as a bid, the emergency vehicle had started affecting the signal controller 2,640 feet prior to the intersection (the beginning of the bidding horizon). Therefore, queues on eastbound Holleman Drive were already cleared before the emergency vehicle arrived at the intersection, making the vehicle pass the intersection smoothly. When the emergency vehicle passed the stop line, the green time extension for eastbound Holleman Drive (Φ25) ended (**B**). Because westbound Holleman Drive (Φ16) had φ^2 (the second-largest φ), the new φ^1 and the new green interval were assigned to westbound Holleman Drive (Φ16) in the new phase (**C**).

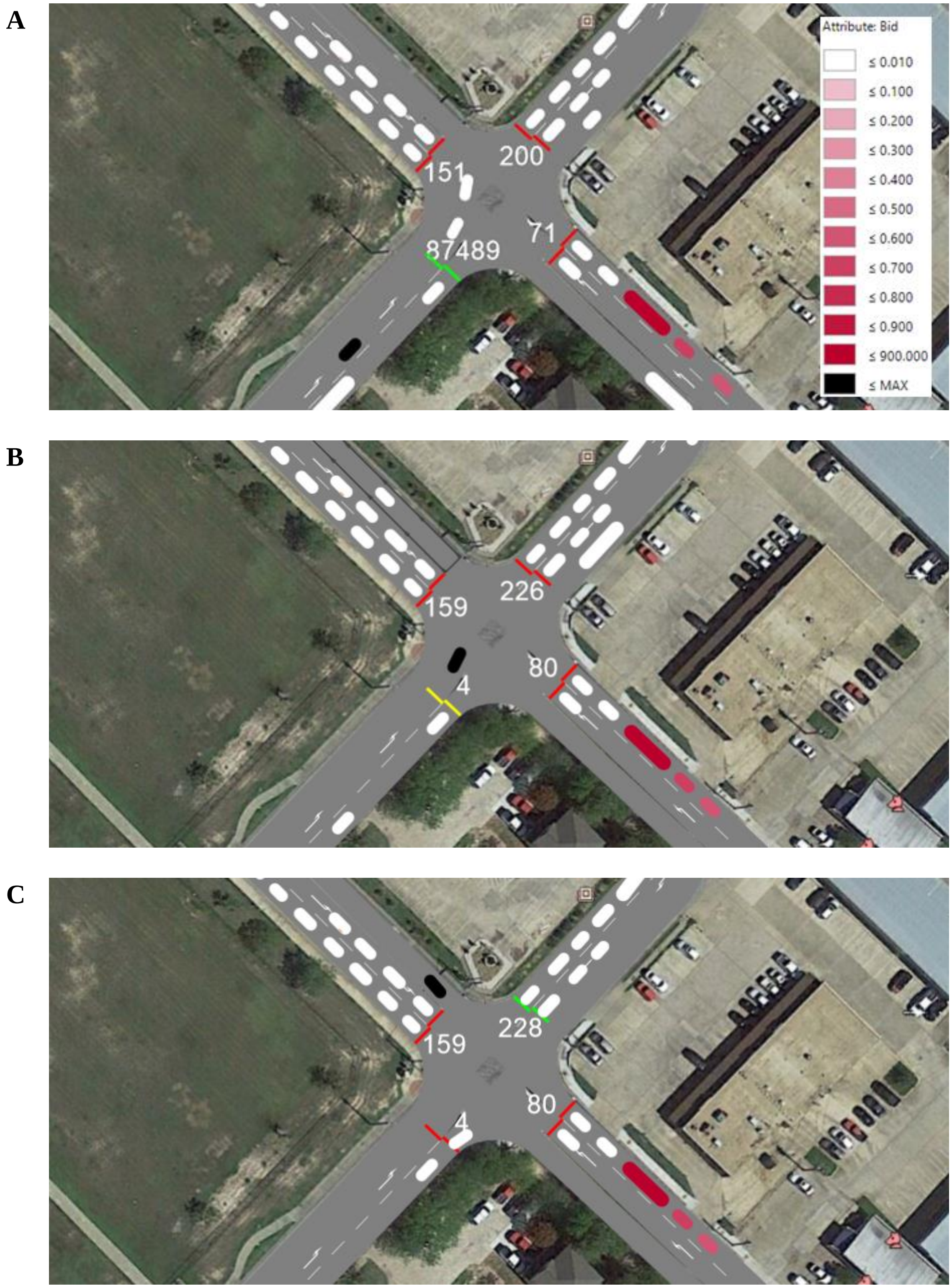


Figure 10. Snapshots of a microsimulation.

In 210 simulations, 267,741 vehicles entered the intersection. The rest of this section presents results in terms of vehicle delay, queue length, and user benefit. To interpret the results with reasonable expectancy (repeatedly achieved values rather than absolute maximum (*5*) and to avoid overrepresentation of larger volume conditions, some averages are presented as means of mean in each scenario when they were calculated across the different vehicular volume. Those cases are indicated by a dagger superscript (†).

3.2.1. Vehicle Delay

Table 6 and **Table 7** show mean delay with NBBPSC and BBPSC by different conditions, respectively. **Figure 11** is a box plot of vehicle delay by hourly vehicular volume on Holleman Drive and control method. A Tukey–Kramer's honest significance test was performed on vehicle delay by volume (**Table 8**). The test revealed significant differences among all different volume conditions at a 99-percent confidence level. The result indicated mean vehicle delay showed a monotonic increase as hourly volume on Holleman Drive increased. The trend was consistent both in NBBPSC and BBPSC, but BBPSC resulted in 26.66 percent larger mean delay ($M^{\dagger}$ = 153.0 seconds) compared to NBBPSC ($M^{\dagger}$ = 120.8 seconds). A 45.30 percent larger mean delay variance was observed with BBPSC ($SD^{\dagger}$ = 128.3 seconds) than with NBBPSC ($SD^{\dagger}$ = 88.3 seconds). At a 99 percent confidence level, a Tukey–Kramer's honest significance test revealed a larger delay with BBPSC than NBBPSC when the volume was the same (**Table 9**). BBPSC broke down at a lighter traffic level than NBBPSC. With NBBPSC, mean delay more than doubled from 1,000 vph (M = 82.6 seconds) to 1,200 vph (M = 172.4 seconds). On the other hand, mean delay with NBBPSC showed less increase from 1,000 vph (M = 52.5 seconds) to 1,200 vph (M = 92.7 seconds) before it doubled from 1,200 vph to 1,400 vph (M = 237.5 seconds).

Table 6 Mean delay with NBBPSC by vehicular volume, penetration rate, and Bid Class

Penetration rate	Bid class	Hourly volume on Holleman Drive (vehicles per hour) 400		600		800		1,000		1,200		1,400		1,600		$M^{\dagger}$	
20%	N	23.6	(20.0)	29.3	(23.1)	35.3	(26.6)	52.0	(36.3)	93.7	(78.9)	241.4	(183.0)	398.1	(286.7)	124.8	(93.5)
	1	27.1	(23.5)	29.6	(27.0)	44.6	(30.0)	53.0	(36.9)	84.9	(45.7)	242.4	(164.1)	381.7	(210.6)	123.3	(76.8)
	2	23.0	(22.9)	26.1	(23.1)	38.8	(28.6)	53.3	(39.5)	78.5	(62.5)	218.3	(162.0)	364.8	(270.5)	114.7	(87.0)
	3	24.5	(16.0)	31.4	(24.4)	38.0	(25.4)	56.8	(33.1)	91.5	(70.1)	242.3	(195.7)	349.3	(239.1)	119.1	(86.3)
	4	27.5	(19.6)	33.2	(23.4)	42.5	(31.2)	67.8	(37.3)	91.4	(74.0)	230.9	(167.3)	389.0	(297.7)	126.0	(92.9)
	5	32.7	(20.7)	34.1	(25.7)	38.4	(23.4)	56.6	(39.7)	105.6	(89.2)	226.8	(184.4)	374.3	(279.6)	124.1	(94.7)
	6	23.8	(19.3)	30.1	(26.5)	38.3	(29.6)	54.4	(36.2)	85.6	(74.8)	190.8	(134.7)	318.7	(202.2)	106.0	(74.8)
	7	27.6	(22.5)	31.4	(25.0)	33.4	(23.8)	47.0	(36.3)	84.4	(67.5)	204.8	(146.4)	354.3	(252.2)	111.8	(82.0)
	8	23.5	(20.9)	30.6	(25.7)	37.4	(26.1)	56.5	(42.7)	98.5	(85.2)	243.3	(193.5)	388.8	(240.7)	125.5	(90.7)
	9	26.6	(20.9)	38.1	(23.2)	45.0	(28.0)	56.6	(37.9)	94.4	(62.5)	221.8	(148.4)	386.0	(237.6)	124.1	(79.8)
	10	25.5	(20.8)	37.7	(26.3)	35.6	(26.1)	54.3	(34.8)	85.1	(57.9)	207.4	(154.0)	357.8	(226.8)	114.8	(78.1)
	E	17.0	(16.1)	22.9	(18.0)	27.5	(23.3)	37.8	(31.3)	68.8	(54.9)	250.4	(182.8)	365.8	(222.1)	112.9	(78.4)
	$M^{\dagger}$	25.2	(20.3)	31.2	(24.3)	37.9	(26.8)	53.9	(36.8)	88.5	(68.6)	226.7	(168.0)	369.0	(247.1)	118.9	(84.6)
40%	N	23.5	(19.8)	28.9	(22.9)	34.4	(26.2)	51.1	(35.9)	94.0	(80.1)	244.7	(184.6)	401.9	(285.6)	125.5	(93.6)
	1	21.3	(20.9)	29.7	(25.4)	37.6	(28.2)	56.8	(35.7)	91.9	(81.5)	246.4	(194.9)	412.2	(307.2)	128.0	(99.1)
	2	24.8	(22.7)	31.3	(24.0)	39.6	(27.0)	52.8	(36.0)	94.7	(75.3)	236.8	(177.6)	403.5	(325.2)	126.2	(98.3)
	3	26.1	(20.1)	29.9	(23.1)	37.6	(26.0)	53.5	(38.8)	89.9	(65.7)	219.2	(166.3)	373.3	(251.7)	118.5	(84.5)
	4	23.7	(20.2)	31.1	(22.2)	38.5	(29.2)	53.4	(37.0)	100.1	(79.7)	246.1	(188.6)	401.4	(301.9)	127.7	(97.0)
	5	24.6	(18.2)	31.1	(24.5)	36.0	(26.2)	55.1	(37.9)	83.8	(70.2)	212.9	(163.7)	340.6	(260.7)	112.0	(85.9)
	6	24.2	(22.7)	27.0	(24.5)	40.9	(28.8)	53.7	(38.3)	80.3	(57.0)	227.4	(163.8)	373.0	(248.7)	118.1	(83.4)
	7	25.8	(18.2)	31.8	(23.7)	40.0	(28.4)	61.5	(35.6)	91.0	(71.6)	231.5	(179.2)	364.3	(271.4)	120.9	(89.7)
	8	28.2	(20.3)	32.1	(26.3)	38.4	(26.9)	55.4	(37.9)	95.8	(82.5)	208.7	(160.5)	351.3	(242.3)	115.7	(85.2)
	9	25.5	(21.6)	31.2	(25.2)	35.8	(25.2)	52.5	(39.8)	92.4	(78.4)	227.1	(173.9)	372.5	(246.5)	119.6	(87.2)
	10	26.3	(20.8)	38.1	(24.6)	40.5	(27.5)	55.4	(36.7)	89.3	(59.3)	212.7	(150.2)	369.3	(231.6)	118.8	(78.7)
	E	17.0	(16.1)	22.9	(18.0)	27.5	(23.3)	37.8	(31.3)	68.8	(54.9)	250.4	(182.8)	365.8	(222.1)	112.9	(78.4)
	$M^{\dagger}$	24.2	(20.1)	30.4	(23.7)	37.2	(26.9)	53.3	(36.7)	89.3	(71.4)	230.3	(173.8)	377.4	(266.2)	120.3	(88.4)
60%	N	23.3	(19.7)	28.5	(22.4)	34.2	(26.4)	50.7	(36.2)	93.6	(80.2)	250.4	(187.8)	406.7	(283.5)	126.8	(93.7)
	1	22.9	(21.2)	30.4	(24.6)	38.1	(27.0)	54.1	(35.8)	105.9	(88.8)	255.0	(200.6)	424.3	(310.6)	132.9	(101.2)
	2	22.2	(19.1)	29.0	(23.3)	33.7	(25.3)	49.9	(34.9)	93.5	(76.6)	222.5	(163.2)	370.7	(263.0)	117.3	(86.5)
	3	24.0	(19.5)	31.9	(23.9)	34.2	(25.6)	52.0	(35.7)	92.1	(78.3)	235.6	(175.6)	400.3	(294.3)	124.3	(93.3)
	4	24.5	(22.1)	28.0	(23.9)	35.5	(27.3)	55.2	(36.6)	88.7	(80.5)	230.4	(181.9)	393.4	(298.7)	122.2	(95.9)
	5	25.1	(20.5)	32.2	(24.1)	39.8	(25.4)	54.1	(37.3)	95.9	(75.1)	232.7	(179.0)	388.3	(297.8)	124.0	(94.2)
	6	24.3	(20.6)	29.3	(21.8)	37.3	(28.9)	52.7	(37.1)	94.6	(72.3)	233.5	(176.3)	393.1	(287.1)	123.5	(92.0)
	7	25.0	(19.9)	30.9	(25.2)	39.2	(27.8)	55.7	(38.7)	83.5	(64.9)	222.0	(164.2)	351.9	(248.7)	115.5	(84.2)
	8	24.7	(19.7)	29.5	(23.7)	39.3	(28.2)	57.8	(36.5)	85.7	(68.3)	226.2	(173.4)	364.2	(271.3)	118.2	(88.7)
	9	28.3	(21.3)	31.9	(25.4)	36.1	(25.8)	52.7	(37.2)	93.2	(80.0)	207.3	(158.2)	350.0	(245.4)	114.2	(84.8)
	10	24.9	(20.3)	35.9	(25.4)	40.0	(27.1)	55.9	(38.9)	92.0	(67.6)	225.6	(165.3)	380.4	(234.3)	122.1	(82.7)
	E	17.0	(16.1)	22.9	(18.0)	27.5	(23.3)	37.8	(31.3)	68.8	(54.9)	250.4	(182.8)	365.8	(222.1)	112.9	(78.4)
	$M^{\dagger}$	23.8	(20.0)	30.0	(23.5)	36.2	(26.5)	52.4	(36.4)	90.6	(74.0)	232.6	(175.7)	382.4	(271.4)	121.2	(89.6)
80%	N	22.6	(19.5)	27.5	(22.2)	33.3	(26.6)	50.0	(34.3)	95.3	(80.5)	256.5	(197.5)	418.3	(295.1)	129.1	(96.5)
	1	23.4	(19.6)	29.5	(21.7)	35.4	(25.6)	52.4	(37.3)	87.9	(74.7)	243.8	(171.1)	390.2	(257.3)	123.2	(86.8)
	2	24.5	(19.9)	28.4	(23.6)	35.8	(27.6)	50.9	(38.0)	96.0	(82.6)	245.2	(184.6)	400.5	(286.6)	125.9	(94.7)
	3	24.6	(20.8)	31.7	(23.6)	34.6	(25.9)	51.9	(37.9)	96.7	(84.8)	247.0	(184.0)	409.5	(280.7)	128.0	(94.0)
	4	22.0	(19.5)	28.8	(22.7)	35.0	(25.5)	51.0	(35.1)	96.8	(80.5)	233.9	(184.5)	384.4	(287.0)	121.7	(93.5)
	5	24.9	(20.2)	30.0	(23.5)	33.7	(25.6)	52.2	(36.3)	91.0	(79.3)	229.3	(169.5)	392.2	(292.1)	121.9	(92.3)
	6	23.5	(21.6)	31.2	(25.0)	39.1	(27.5)	55.4	(35.9)	93.7	(78.3)	237.2	(183.5)	401.4	(312.2)	125.9	(97.7)
	7	25.0	(20.2)	29.9	(21.8)	37.7	(27.6)	52.9	(37.5)	93.9	(71.6)	232.0	(177.4)	388.3	(275.9)	122.8	(90.3)
	8	24.4	(20.4)	29.7	(24.7)	38.6	(27.6)	54.3	(38.2)	82.6	(65.7)	223.4	(164.3)	358.6	(256.9)	115.9	(85.4)
	9	26.9	(19.7)	31.5	(25.0)	39.7	(27.9)	57.9	(37.0)	92.5	(75.8)	219.1	(169.5)	359.4	(257.4)	118.1	(87.5)
	10	25.9	(20.9)	35.0	(25.0)	37.7	(26.3)	54.4	(38.3)	91.5	(70.2)	218.6	(162.3)	367.3	(236.7)	118.6	(82.8)
	E	17.0	(16.1)	22.9	(18.0)	27.5	(23.3)	37.8	(31.3)	68.8	(54.9)	250.4	(182.8)	365.8	(222.1)	112.9	(78.4)
	$M^{\dagger}$	23.7	(19.9)	29.7	(23.1)	35.7	(26.4)	51.8	(36.4)	90.6	(74.9)	236.4	(177.6)	386.3	(271.7)	122.0	(90.0)
100%	N	28.3	(10.0)	19.9	(17.4)	24.1	(25.2)	37.0	(31.8)	71.0	(64.1)	216.8	(126.8)	379.0	(224.0)	110.9	(71.3)
	1	20.9	(19.5)	27.5	(22.8)	33.2	(26.5)	48.6	(33.6)	92.1	(72.8)	242.0	(171.9)	422.9	(299.6)	126.7	(92.4)
	2	23.7	(20.0)	27.7	(22.2)	34.7	(27.0)	51.8	(35.1)	98.5	(86.9)	268.5	(217.6)	410.9	(295.7)	130.8	(100.6)
	3	23.4	(19.0)	29.9	(22.4)	35.0	(26.0)	52.2	(36.8)	92.9	(79.5)	254.7	(184.2)	405.8	(265.6)	127.7	(90.5)
	4	25.2	(20.5)	29.1	(22.5)	34.3	(26.5)	50.2	(38.0)	91.0	(78.7)	237.2	(173.5)	391.1	(276.4)	122.6	(90.9)
	5	22.8	(20.0)	29.7	(24.2)	36.1	(26.6)	52.7	(36.6)	101.0	(83.3)	244.2	(188.8)	406.3	(291.3)	127.5	(95.8)
	6	24.2	(20.1)	29.9	(23.3)	33.4	(25.0)	51.6	(35.7)	91.2	(80.3)	225.1	(167.6)	382.6	(290.6)	119.7	(91.8)
	7	24.2	(21.2)	31.4	(24.2)	39.1	(26.4)	54.9	(36.5)	93.5	(76.1)	234.3	(181.5)	396.4	(298.4)	124.8	(94.9)
	8	24.3	(19.7)	29.9	(23.1)	37.2	(28.1)	53.8	(37.6)	90.1	(72.2)	228.6	(173.0)	375.7	(276.7)	119.9	(90.1)
	9	26.4	(20.6)	31.4	(24.7)	40.3	(28.0)	57.4	(37.8)	90.0	(72.2)	226.9	(175.3)	365.4	(263.8)	119.7	(88.9)
	10	25.7	(20.8)	33.1	(25.3)	37.9	(26.8)	54.0	(37.8)	90.3	(69.6)	215.3	(156.9)	364.2	(233.4)	117.2	(81.5)
	E	17.0	(16.1)	22.9	(18.0)	27.5	(23.3)	37.8	(31.3)	68.8	(54.9)	250.4	(182.8)	365.8	(222.1)	112.9	(78.4)
	$M^{\dagger}$	23.8	(19.0)	28.5	(22.5)	34.4	(26.3)	50.2	(35.7)	89.2	(74.2)	237.0	(175.0)	388.8	(269.8)	121.7	(88.9)
All	N	24.2	(17.8)	26.8	(21.6)	32.3	(26.2)	48.1	(34.9)	89.5	(76.7)	242.0	(175.9)	400.8	(275.0)	123.4	(89.7)
	1	23.1	(21.0)	29.3	(24.3)	37.8	(27.4)	53.0	(35.8)	92.6	(72.7)	245.9	(180.5)	406.3	(277.0)	126.8	(91.3)
	2	23.6	(20.9)	28.5	(23.2)	36.5	(27.1)	51.8	(36.7)	92.2	(76.8)	238.3	(181.0)	390.1	(288.2)	123.0	(93.4)
	3	24.5	(19.1)	31.0	(23.5)	35.9	(25.8)	53.3	(36.5)	92.6	(75.7)	239.7	(181.1)	387.6	(266.3)	123.5	(89.7)
	4	24.6	(20.4)	30.0	(22.9)	37.2	(27.9)	55.5	(36.8)	93.6	(78.7)	235.7	(179.2)	391.8	(292.3)	124.1	(94.0)
	5	26.0	(19.9)	31.4	(24.4)	36.8	(25.5)	54.2	(37.5)	95.5	(79.4)	229.2	(177.1)	380.3	(284.3)	121.9	(92.6)
	6	24.0	(20.8)	29.5	(24.2)	37.8	(28.0)	53.6	(36.6)	89.1	(72.6)	222.8	(165.2)	373.7	(268.2)	118.6	(87.9)
	7	25.5	(20.4)	31.1	(24.0)	37.9	(26.8)	54.4	(36.9)	89.3	(70.4)	224.9	(169.7)	371.0	(269.3)	119.2	(88.2)
	8	25.0	(20.2)	30.4	(24.7)	38.2	(27.4)	55.6	(38.6)	90.5	(74.8)	226.0	(172.9)	367.7	(257.6)	119.1	(88.0)
	9	26.7	(20.8)	32.8	(24.7)	39.4	(27.0)	55.4	(38.0)	92.5	(73.8)	220.4	(165.1)	366.7	(250.1)	119.1	(85.6)
	10	25.7	(20.7)	36.0	(25.3)	38.3	(26.8)	54.8	(37.3)	89.6	(64.9)	215.9	(157.7)	367.8	(232.6)	118.3	(80.8)
	E	17.0	(16.1)	22.9	(18.0)	27.5	(23.3)	37.8	(31.3)	68.8	(54.9)	250.4	(182.8)	365.8	(222.1)	112.9	(78.4)
	$M^{\dagger}$	24.2	(19.8)	30.0	(23.4)	36.3	(26.6)	52.3	(36.4)	89.6	(72.6)	232.6	(174.0)	380.8	(265.3)	120.8	(88.3)

Note: Numbers are in seconds; Parentheses indicate standard deviations.

Table 7 Mean delay with BBPSC by vehicular volume, penetration rate, and Bid Class

Penetration rate	Bid class	Hourly volume on Holleman Drive (vehicles per hour)														$M^{\dagger}$	
		400		600		800		1,000		1,200		1,400		1,600			
20%	N	50.8	(49.6)	64.0	(57.5)	78.0	(70.6)	93.5	(77.5)	181.1	(158.6)	336.9	(285.9)	448.8	(396.8)	179.0	(156.6)
	1	42.0	(36.1)	58.4	(40.9)	72.8	(58.1)	82.5	(63.4)	168.1	(141.2)	324.8	(269.0)	423.9	(354.2)	167.5	(137.5)
	2	37.1	(37.7)	45.5	(45.4)	65.8	(56.2)	88.1	(65.5)	149.7	(136.5)	282.9	(225.6)	355.2	(295.4)	146.3	(123.2)
	3	27.6	(38.9)	42.9	(38.9)	62.1	(52.2)	80.5	(60.6)	159.9	(166.1)	303.1	(270.1)	392.9	(371.2)	152.7	(142.6)
	4	31.8	(34.1)	45.4	(46.3)	63.3	(63.8)	78.7	(63.4)	165.1	(150.9)	326.7	(258.7)	462.4	(432.9)	167.6	(150.0)
	5	22.3	(36.2)	47.7	(41.3)	52.9	(44.1)	76.1	(64.2)	149.2	(120.5)	305.8	(276.4)	413.7	(387.3)	152.5	(138.6)
	6	20.4	(25.5)	36.5	(44.2)	48.9	(45.9)	72.8	(61.8)	133.6	(108.2)	258.9	(248.7)	355.3	(286.8)	132.3	(117.3)
	7	20.7	(26.7)	29.0	(33.2)	49.8	(49.6)	66.8	(49.2)	142.6	(113.1)	267.1	(211.6)	436.6	(399.8)	144.7	(126.2)
	8	17.6	(23.4)	24.9	(34.7)	42.8	(42.4)	70.5	(66.5)	148.7	(115.3)	294.8	(196.9)	423.5	(319.3)	146.1	(114.1)
	9	17.0	(20.6)	25.9	(30.0)	42.2	(46.0)	66.5	(48.8)	153.6	(125.1)	293.4	(237.5)	417.9	(334.6)	145.2	(120.4)
	10	23.3	(28.9)	26.7	(34.1)	43.6	(38.8)	58.6	(48.8)	131.1	(107.5)	264.0	(174.1)	352.6	(272.0)	128.6	(100.6)
	E	1.8	(4.3)	0.7	(1.5)	1.7	(3.3)	4.9	(14.7)	66.2	(76.8)	178.2	(140.5)	252.3	(188.5)	72.3	(61.4)
	$M^{\dagger}$	26.0	(30.2)	37.3	(37.3)	52.0	(47.6)	70.0	(57.0)	145.7	(126.7)	286.4	(232.9)	394.6	(336.6)	144.6	(124.0)
40%	N	47.3	(48.4)	56.6	(52.7)	67.6	(60.1)	88.2	(71.7)	191.0	(161.2)	336.6	(272.1)	425.8	(358.9)	173.3	(146.4)
	1	39.0	(37.9)	59.9	(52.0)	74.5	(54.9)	89.4	(79.6)	190.0	(180.5)	342.3	(302.1)	404.7	(317.6)	171.4	(146.4)
	2	38.3	(38.2)	45.7	(39.4)	63.1	(58.6)	84.6	(62.5)	178.2	(168.3)	322.4	(293.7)	423.7	(373.2)	165.1	(147.7)
	3	41.1	(39.4)	50.4	(48.2)	61.8	(49.6)	81.7	(61.2)	163.9	(131.5)	327.3	(259.5)	446.1	(390.5)	167.5	(140.0)
	4	27.8	(29.0)	47.6	(42.5)	59.0	(56.1)	85.5	(64.2)	180.0	(135.7)	318.2	(241.8)	424.0	(353.6)	163.2	(131.8)
	5	25.6	(24.1)	38.2	(32.1)	58.7	(47.5)	72.7	(58.6)	165.6	(131.0)	289.5	(226.1)	378.5	(308.9)	147.0	(118.3)
	6	23.5	(28.7)	39.0	(37.5)	57.6	(50.9)	78.3	(56.2)	166.3	(134.1)	313.6	(251.1)	377.6	(288.5)	150.9	(121.0)
	7	22.4	(28.8)	38.6	(36.0)	53.9	(49.4)	77.4	(60.6)	165.6	(125.4)	312.4	(254.1)	386.1	(339.3)	150.9	(127.7)
	8	26.5	(34.0)	36.3	(34.6)	50.6	(49.9)	71.3	(57.0)	152.4	(119.4)	289.5	(245.8)	375.6	(309.6)	143.2	(121.5)
	9	21.7	(23.6)	32.2	(37.1)	52.9	(47.5)	70.7	(57.4)	157.0	(114.2)	320.8	(242.0)	398.4	(322.1)	150.5	(120.6)
	10	22.8	(26.8)	33.1	(32.3)	48.8	(44.4)	69.9	(52.3)	168.0	(137.7)	291.2	(220.4)	373.9	(272.8)	144.0	(112.4)
	E	2.0	(5.2)	0.7	(1.5)	1.4	(2.5)	3.6	(9.5)	66.2	(81.1)	173.0	(137.9)	242.7	(181.1)	70.0	(59.8)
	$M^{\dagger}$	28.2	(30.3)	39.9	(37.2)	54.2	(47.6)	72.8	(57.6)	162.0	(135.0)	303.1	(245.5)	388.1	(318.0)	149.7	(124.5)
60%	N	43.0	(41.8)	50.5	(47.8)	62.1	(54.4)	83.6	(67.7)	175.2	(131.2)	333.2	(284.1)	461.6	(408.0)	172.7	(147.9)
	1	38.8	(39.9)	50.1	(44.7)	63.6	(58.5)	87.8	(65.0)	184.6	(135.4)	349.7	(310.7)	471.4	(422.7)	178.0	(153.8)
	2	37.7	(37.5)	47.7	(42.0)	63.0	(52.8)	82.7	(61.5)	171.6	(126.5)	319.0	(240.2)	447.8	(429.6)	167.1	(141.4)
	3	38.1	(38.6)	46.3	(40.9)	63.7	(53.1)	81.7	(66.2)	179.1	(143.7)	326.7	(294.0)	442.0	(391.5)	168.2	(146.8)
	4	32.4	(32.3)	42.1	(37.1)	61.7	(49.9)	82.7	(63.8)	161.8	(128.8)	321.7	(281.7)	444.9	(400.3)	163.9	(142.0)
	5	32.1	(32.8)	41.2	(36.2)	55.5	(48.8)	79.4	(58.9)	163.7	(132.4)	311.4	(273.4)	440.7	(396.6)	160.6	(139.9)
	6	30.3	(30.9)	40.3	(36.5)	58.5	(49.2)	79.6	(56.2)	158.9	(110.4)	316.1	(229.6)	455.6	(395.1)	162.7	(129.7)
	7	24.2	(26.3)	44.8	(35.1)	53.7	(44.7)	75.1	(57.9)	149.6	(107.4)	287.4	(236.2)	405.2	(332.6)	148.6	(120.0)
	8	24.3	(28.8)	37.8	(38.6)	55.6	(46.3)	79.0	(59.4)	160.3	(117.0)	302.9	(259.1)	378.7	(330.9)	148.4	(125.7)
	9	28.1	(29.8)	37.2	(37.6)	52.7	(47.0)	74.5	(60.4)	154.9	(121.3)	281.1	(238.3)	415.4	(385.3)	149.1	(131.4)
	10	26.3	(27.5)	34.9	(33.2)	54.6	(51.1)	75.1	(57.3)	143.0	(104.4)	297.7	(218.8)	417.7	(345.0)	149.9	(119.6)
	E	1.8	(4.3)	0.7	(1.5)	1.5	(2.7)	2.5	(5.9)	64.0	(72.9)	164.7	(128.7)	290.6	(219.3)	75.1	(62.2)
	$M^{\dagger}$	29.8	(30.9)	39.5	(35.9)	53.8	(46.5)	73.6	(56.7)	155.6	(119.3)	301.0	(249.6)	422.6	(371.4)	153.7	(130.0)
80%	N	41.9	(38.4)	46.1	(43.6)	60.4	(54.0)	81.3	(65.1)	190.4	(144.0)	346.7	(292.9)	484.4	(408.9)	178.8	(149.6)
	1	40.4	(36.6)	49.1	(48.7)	64.6	(52.4)	76.9	(64.7)	168.9	(122.6)	344.6	(260.1)	477.5	(378.5)	174.6	(137.6)
	2	36.9	(35.1)	48.6	(44.9)	61.6	(55.0)	83.4	(63.6)	192.2	(141.7)	348.5	(314.6)	487.7	(414.4)	179.8	(152.8)
	3	35.4	(31.8)	48.1	(42.2)	61.6	(54.1)	82.4	(63.6)	175.4	(142.4)	329.9	(296.8)	469.5	(388.2)	171.8	(145.6)
	4	30.0	(27.6)	47.0	(41.9)	57.8	(46.9)	83.7	(58.9)	183.8	(143.7)	332.3	(274.2)	483.2	(429.7)	174.0	(146.1)
	5	33.9	(36.3)	44.3	(43.7)	61.6	(51.9)	84.0	(64.5)	181.3	(158.4)	320.8	(257.6)	463.8	(397.1)	170.0	(144.2)
	6	29.3	(29.9)	45.6	(41.6)	56.1	(47.3)	77.7	(60.1)	169.0	(136.6)	322.7	(281.2)	456.8	(394.8)	165.3	(141.6)
	7	29.2	(30.8)	44.7	(41.7)	56.2	(48.2)	77.0	(55.7)	169.0	(123.6)	319.6	(241.9)	476.6	(408.3)	167.5	(135.7)
	8	30.4	(30.6)	40.9	(37.2)	56.0	(45.6)	73.8	(55.5)	161.6	(130.2)	294.7	(243.6)	413.5	(340.2)	153.0	(126.1)
	9	30.4	(31.1)	41.5	(37.5)	55.7	(47.7)	80.6	(61.1)	169.9	(139.0)	298.3	(246.0)	443.1	(390.1)	159.9	(136.1)
	10	28.4	(30.1)	39.7	(40.3)	52.8	(48.3)	76.5	(58.9)	149.1	(108.3)	299.7	(208.1)	433.4	(363.9)	154.2	(122.5)
	E	1.8	(4.3)	0.7	(1.5)	1.4	(2.5)	4.7	(9.9)	79.5	(80.5)	185.5	(157.1)	299.7	(223.9)	81.9	(68.5)
	$M^{\dagger}$	30.7	(30.2)	41.4	(38.7)	53.8	(46.1)	73.5	(56.8)	165.8	(130.9)	311.9	(256.2)	449.1	(378.2)	160.9	(133.9)
100%	N	18.6	(24.2)	46.7	(53.2)	46.7	(44.9)	68.2	(55.1)	148.2	(101.9)	262.3	(154.3)	388.3	(252.2)	139.9	(98.0)
	1	37.2	(36.4)	41.0	(40.1)	55.5	(48.3)	83.5	(61.9)	174.7	(119.1)	357.6	(303.5)	500.9	(443.2)	178.6	(150.3)
	2	35.9	(33.1)	42.3	(40.0)	56.2	(49.8)	84.5	(64.3)	180.4	(146.3)	333.3	(283.7)	448.4	(355.6)	168.7	(139.0)
	3	33.6	(32.8)	43.8	(41.3)	58.8	(50.2)	80.0	(60.9)	169.3	(126.2)	342.3	(275.7)	488.7	(414.6)	173.8	(143.1)
	4	32.9	(32.9)	40.8	(39.6)	56.8	(51.6)	81.0	(62.2)	176.0	(143.7)	325.0	(282.9)	438.2	(351.9)	164.4	(137.8)
	5	28.5	(28.9)	39.6	(36.6)	58.0	(49.4)	83.1	(57.1)	174.1	(137.3)	344.1	(311.9)	467.5	(400.6)	170.7	(146.0)
	6	32.7	(31.7)	43.4	(41.1)	57.1	(48.2)	80.9	(60.9)	171.8	(142.7)	305.6	(248.9)	455.4	(398.5)	163.8	(138.9)
	7	28.8	(30.7)	42.8	(39.1)	56.6	(48.1)	80.5	(57.8)	166.2	(132.9)	331.2	(292.9)	456.6	(382.1)	166.1	(140.5)
	8	27.7	(30.0)	40.0	(36.7)	55.8	(45.3)	79.4	(57.7)	153.2	(117.7)	315.9	(241.3)	445.1	(373.5)	159.6	(128.9)
	9	31.7	(31.2)	39.3	(37.9)	54.7	(46.7)	81.9	(60.1)	158.7	(134.9)	294.7	(248.3)	398.1	(342.5)	151.3	(128.8)
	10	29.2	(31.1)	38.3	(34.8)	54.8	(50.0)	78.7	(59.1)	149.0	(118.6)	295.2	(225.7)	430.8	(361.0)	153.7	(125.8)
	E	1.8	(4.3)	0.7	(1.5)	1.5	(2.7)	3.7	(9.5)	71.5	(75.0)	188.8	(154.2)	303.9	(238.5)	81.7	(69.4)
	$M^{\dagger}$	28.2	(28.9)	38.2	(36.8)	51.0	(44.6)	73.8	(55.6)	157.8	(124.7)	308.0	(251.9)	435.2	(359.5)	156.0	(128.9)
All	N	40.3	(40.5)	52.8	(51.0)	62.9	(56.8)	83.0	(67.4)	177.2	(139.4)	323.2	(257.9)	441.8	(365.0)	168.7	(139.7)
	1	39.5	(37.4)	51.7	(45.3)	66.2	(54.4)	84.0	(66.9)	177.3	(139.7)	343.8	(289.1)	455.7	(383.2)	174.0	(145.1)
	2	37.2	(36.3)	46.0	(42.3)	61.9	(54.5)	84.7	(63.5)	174.4	(143.9)	321.2	(271.6)	432.6	(373.6)	165.4	(140.8)
	3	35.2	(36.3)	46.3	(42.3)	61.6	(51.8)	81.3	(62.5)	169.5	(142.0)	325.9	(279.2)	447.8	(391.2)	166.8	(143.6)
	4	31.0	(31.2)	44.6	(41.5)	59.7	(53.7)	82.3	(62.5)	173.3	(140.6)	324.8	(267.9)	450.6	(393.7)	166.6	(141.6)
	5	28.5	(31.6)	42.2	(38.0)	57.3	(48.3)	79.1	(60.7)	166.8	(135.9)	314.3	(269.1)	432.8	(378.1)	160.1	(137.4)
	6	27.3	(29.3)	41.0	(40.2)	55.6	(48.3)	77.9	(59.0)	159.9	(126.4)	303.4	(251.9)	420.1	(352.8)	155.0	(129.7)
	7	25.1	(28.7)	40.0	(37.0)	54.0	(48.0)	75.3	(56.2)	158.6	(120.5)	303.5	(247.3)	432.2	(372.4)	155.5	(130.0)
	8	25.3	(29.4)	36.0	(36.3)	52.1	(45.9)	74.8	(59.2)	155.3	(119.9)	299.6	(237.3)	407.3	(334.7)	150.0	(123.3)
	9	25.8	(27.3)	35.2	(36.0)	51.6	(47.0)	74.9	(57.5)	158.8	(126.9)	297.6	(242.4)	414.6	(354.9)	151.2	(127.4)
	10	26.0	(28.9)	34.5	(34.9)	50.9	(46.5)	71.8	(55.3)	148.0	(115.3)	289.6	(209.4)	401.7	(322.9)	146.1	(116.2)
	E	1.8	(4.5)	0.7	(1.5)	1.5	(2.7)	3.9	(9.9)	69.5	(77.3)	178.0	(143.6)	277.8	(210.3)	76.2	(64.3)
	$M^{\dagger}$	28.6	(30.1)	39.2	(37.2)	53.0	(46.5)	72.7	(56.7)	157.4	(127.3)	302.1	(247.2)	417.9	(352.7)	153.0	(128.3)

Note: Numbers are in seconds; Parentheses indicate standard deviations.

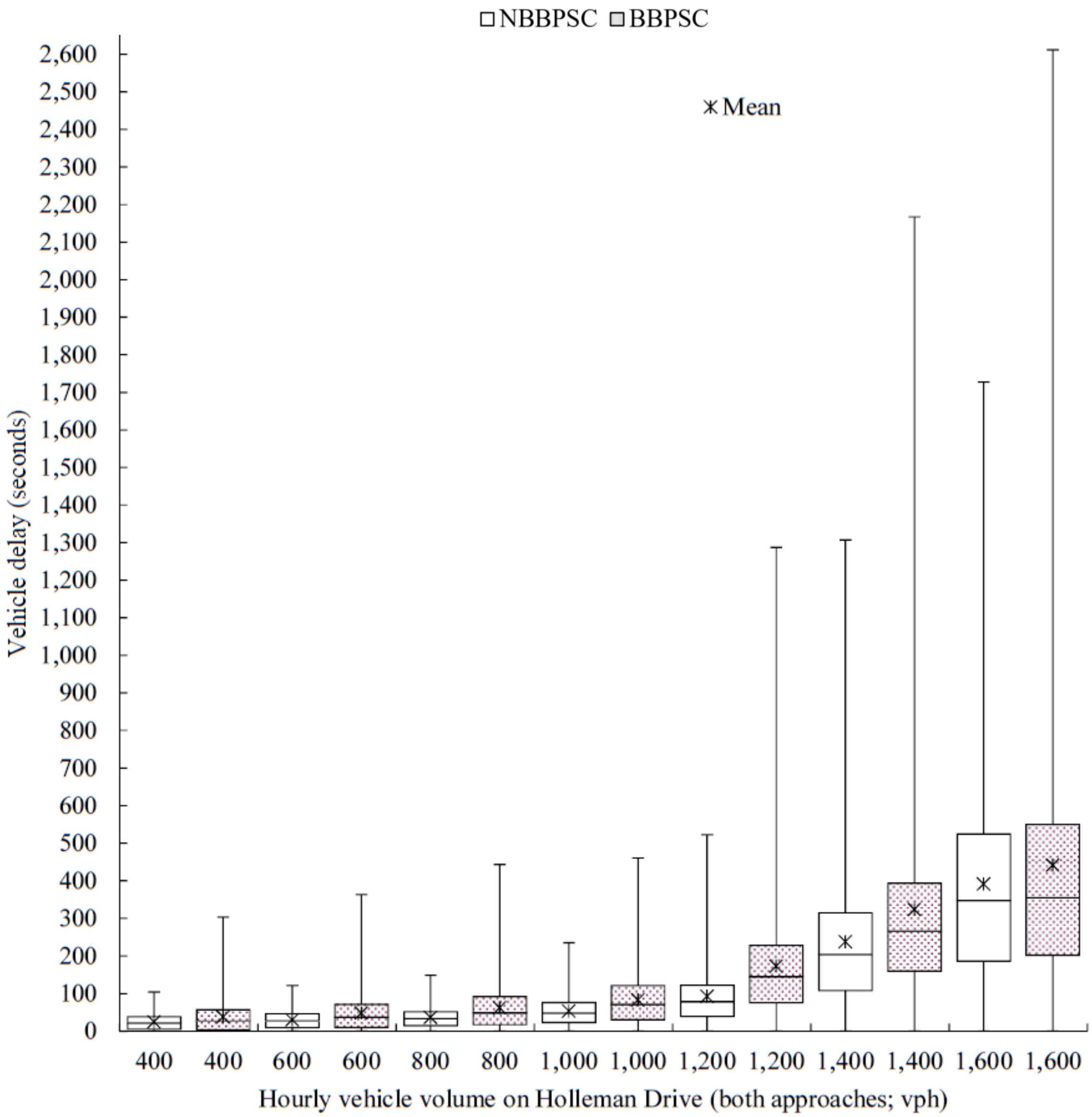


Figure 11. Box plot of vehicle delay by vehicular volume and control method.

Table 8 Results of Tukey–Kramer's honest significance test on vehicle delay by hourly vehicular volume on Holleman Drive

Comparison (vph)	Difference	99% confidence interval		*p*
		Lower	Upper	
600-400	8.2	2.8	13.6	0.000*
800-400	18.2	13.0	23.4	0.000*
1,000-400	36.9	31.8	41.9	0.000*
1,200-400	101.2	96.3	106.2	0.000*
1,400-400	249.0	244.1	254.0	0.000*
1,600-400	385.6	380.6	390.5	0.000*
800-600	10.0	5.2	14.9	0.000*
1,000-600	28.7	24.0	33.4	0.000*
1,200-600	93.0	88.4	97.6	0.000*
1,400-600	240.8	236.2	245.4	0.000*
1,600-600	377.3	372.7	382.0	0.000*
1,000-800	18.6	14.2	23.1	0.000*
1,200-800	83.0	78.6	87.4	0.000*
1,400-800	230.8	226.4	235.1	0.000*
1,600-800	367.3	362.9	371.7	0.000*
1,200-1,000	64.3	60.1	68.5	0.000*
1,400-1,000	212.1	207.9	216.3	0.000*
1,600-1,000	348.7	344.5	352.9	0.000*
1,400-1,200	147.8	143.7	151.9	0.000*
1,600-1,200	284.3	280.2	288.4	0.000*
1,600-1,400	136.5	132.5	140.6	0.000*

Note: Units are in seconds per vehicle. * indicates significance at a 99-percent confidence level.

Table 9 Results of Tukey–Kramer's honest significance test on vehicle delay by the control method on the same volume conditions

Comparison (vph)	Difference	99% confidence interval		*p*
		Lower	Upper	
BBPSC (400)-NBBPSC (400)	13.1	4.3	21.9	0.000*
BBPSC (600)-NBBPSC (600)	18.0	10.1	25.8	0.000*
BBPSC (800)-NBBPSC (800)	25.9	18.7	33.1	0.000*
BBPSC (1,000)-NBBPSC (1,000)	30.1	23.4	36.7	0.000*
BBPSC (1,200)-NBBPSC (1,200)	79.7	73.4	86.0	0.000*
BBPSC (1,400)-NBBPSC (1,400)	85.9	79.6	92.2	0.000*
BBPSC (1,600)-NBBPSC (1,600)	50.2	43.9	56.5	0.000*

Note: Units are in seconds per vehicle. * indicates significance at a 99-percent confidence level.

Figure 12 shows mean vehicle delay by control method, vehicular volume, and bid class. From Bid Class N (USD 0.01 < bid ≤ USD 0.10) through Bid Class 10 (USD 0.90 < bid ≤ USD 1.00), delay was relatively constant with both NBBPSC (Pearson's correlation coefficient, or $r^{\dagger}$ = -0.02) and BBPSC ($r^{\dagger}$ = -0.06). However, the correlations were slight but more obvious in undersaturated conditions (1,000 vph or less on Holleman Drive) as they were $r^{\dagger}$ = 0.08 with NBBPSC and $r^{\dagger}$ = -0.22 with BBPSC. On average, Bid Class E (USD 999.00) was associated with smaller delay. With NBBPSC, mean delay in Bid Class E was 112.9 seconds[†] while that of the other classes was 122.4 seconds[†]. With BBPSC, however, mean delay was 76.2 seconds[†], which was 53.37 percent smaller than that of the other classes ($M^{\dagger}$ = 163.4 seconds). In particular, mean vehicle delay for Bid Class E was 2.0 seconds[†] with BBPSC in undersaturated conditions (1,000 vph or less on Holleman Drive) whereas it was 26.3 seconds[†] in the same conditions with NBBPSC, meaning that Bid Class E experienced 92.40 percent smaller delay than the other bidders. **Table 10** displays the results of a Tukey–Kramer’s honest significance test on vehicle delay by Bid Class at a 99 percent confidence level. Among 66 comparison combinations of Bid Classes, the test found 35 significant differences with BBPSC whereas the significant differences were observed between five combinations with NBBPSC. **Figure 13** shows Bid Class combinations where the Tukey–Kramer’s honest significance test found statistical differences. With NBBPSC, there were five Bid Class comparisons that indicated significant differences in delay. On the other hand, relatively larger bids tended to result in a smaller delay with BBPSC, as indicated by black circles placed in the upper right corner of the matrix. With BBPSC, Bid Class E led significantly shorter delays than any other Bid Classes.

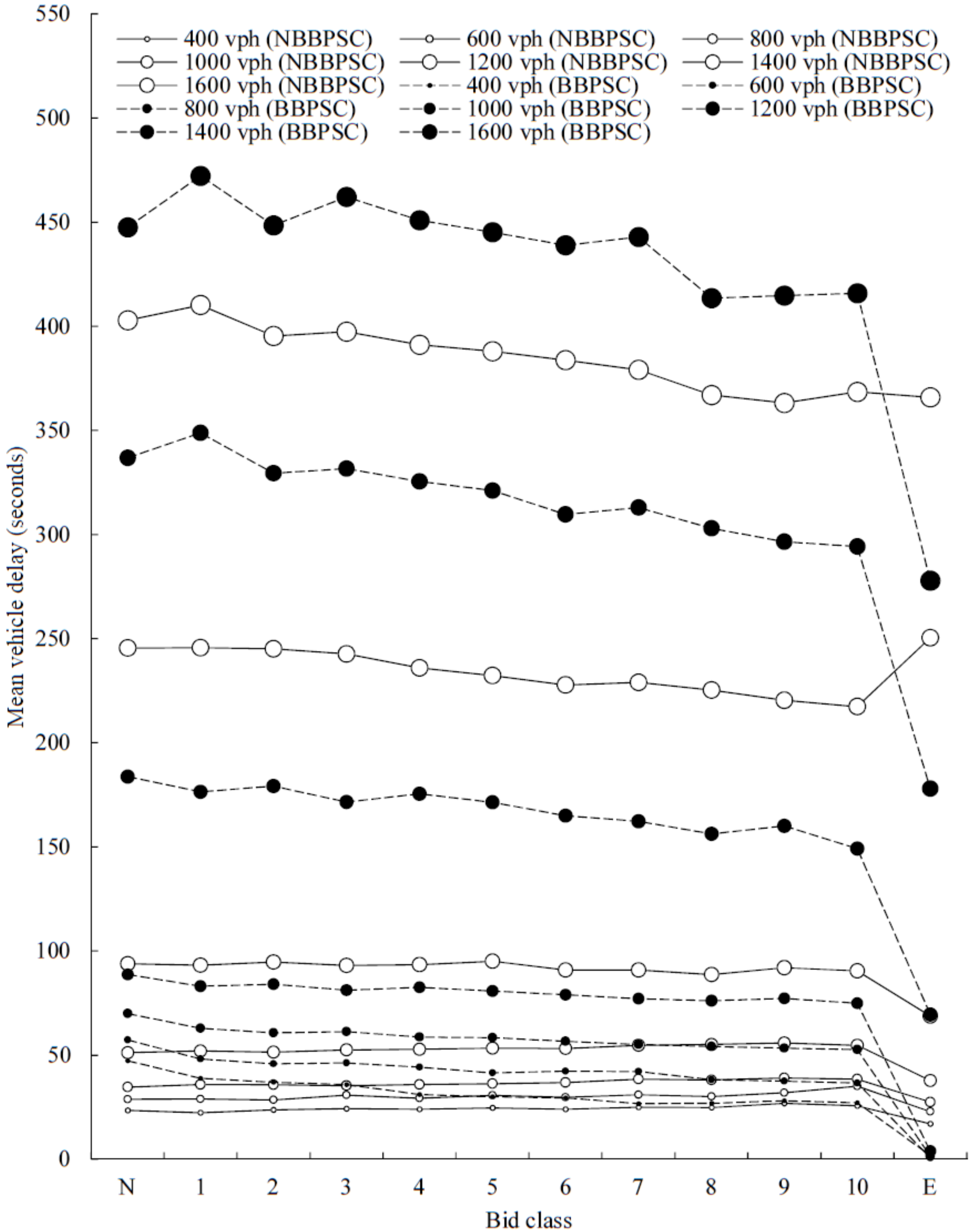


Figure 12. Mean vehicle delay by control method, vehicular volume, and Bid Class.

Table 10 Results of Tukey–Kramer's honest significance test on vehicle delay by Bid Class

	NBBPSC				BBPSC			
		99% confidence interval				99% confidence interval		
Comparison	Difference	Lower	Upper	*p*	Difference	Lower	Upper	*p*
1-N	1.7	-7.6	11.0	1.000	1.3	-6.4	9.0	1.000
2-N	-1.6	-10.3	7.1	1.000	-4.2	-11.4	2.9	0.546
3-N	0.3	-8.5	9.0	1.000	-1.6	-8.8	5.6	1.000
4-N	-4.2	-12.9	4.6	0.824	-7.0	-14.3	0.2	0.014
5-N	-4.9	-13.6	3.8	0.617	-8.6	-15.8	-1.5	0.000*
6-N	-7.4	-16.0	1.2	0.059	-12.7	-19.8	-5.6	0.000*
7-N	-6.8	-15.6	2.0	0.138	-12.0	-19.2	-4.7	0.000*
8-N	-10.0	-18.7	-1.3	0.001*	-17.5	-24.7	-10.4	0.000*
9-N	-11.9	-20.7	-3.1	0.000*	-19.0	-26.3	-11.8	0.000*
10-N	-9.5	-18.1	-0.8	0.002*	-17.9	-25.0	-10.8	0.000*
E-N	-7.5	-29.9	14.9	0.984	-53.2	-71.8	-34.7	0.000*
1-2	-3.3	-15.2	8.6	0.997	-5.5	-15.4	4.3	0.621
1-3	-1.4	-13.4	10.5	1.000	-2.9	-12.8	7.0	0.994
1-4	-5.9	-17.8	6.1	0.798	-8.4	-18.2	1.5	0.069
1-5	-6.6	-18.5	5.3	0.647	-9.9	-19.8	-0.1	0.009*
1-6	-9.1	-20.9	2.8	0.155	-14.0	-23.8	-4.2	0.000*
1-7	-8.5	-20.5	3.5	0.248	-13.3	-23.2	-3.4	0.000*
1-8	-11.7	-23.6	0.2	0.013	-18.9	-28.7	-9.0	0.000*
1-9	-13.6	-25.6	-1.6	0.001*	-20.3	-30.2	-10.4	0.000*
1-10	-11.1	-23.0	0.7	0.023	-19.2	-29.0	-9.4	0.000*
E-1	-9.2	-33.0	14.6	0.955	-54.6	-74.3	-34.8	0.000*
2-3	1.9	-9.6	13.3	1.000	2.6	-6.9	12.1	0.997
2-4	-2.6	-14.1	8.9	1.000	-2.8	-12.3	6.7	0.994
2-5	-3.3	-14.8	8.1	0.996	-4.4	-13.9	5.0	0.848
2-6	-5.8	-17.1	5.6	0.759	-8.5	-17.8	0.9	0.036
2-7	-5.2	-16.8	6.3	0.869	-7.7	-17.3	1.8	0.096
2-8	-8.4	-19.8	3.0	0.201	-13.3	-22.7	-3.9	0.000*
2-9	-10.3	-21.8	1.2	0.038	-14.8	-24.3	-5.3	0.000*
2-10	-7.9	-19.2	3.5	0.291	-13.7	-23.1	-4.3	0.000*
E-2	-5.9	-29.5	17.7	0.999	-49.0	-68.5	-29.5	0.000*
3-4	-4.5	-16.0	7.1	0.954	-5.4	-14.9	4.1	0.595
3-5	-5.2	-16.7	6.3	0.875	-7.0	-16.5	2.4	0.191
3-6	-7.6	-19.0	3.7	0.333	-11.1	-20.5	-1.7	0.001*
3-7	-7.1	-18.7	4.4	0.476	-10.4	-19.9	-0.8	0.003*
3-8	-10.3	-21.7	1.2	0.038	-15.9	-25.4	-6.5	0.000*
3-9	-12.2	-23.7	-0.6	0.004*	-17.4	-26.9	-7.9	0.000*
3-10	-9.7	-21.1	1.7	0.064	-16.3	-25.7	-6.9	0.000*
E-3	-7.8	-31.4	15.8	0.986	-51.6	-71.2	-32.1	0.000*
4-5	-0.7	-12.2	10.8	1.000	-1.6	-11.1	7.9	1.000
4-6	-3.2	-14.6	8.2	0.997	-5.7	-15.1	3.8	0.515
4-7	-2.7	-14.2	8.9	0.999	-4.9	-14.5	4.6	0.738
4-8	-5.8	-17.3	5.6	0.760	-10.5	-20.0	-1.0	0.002*
4-9	-7.7	-19.3	3.8	0.337	-12.0	-21.5	-2.4	0.000*
4-10	-5.3	-16.7	6.2	0.856	-10.9	-20.3	-1.4	0.001*
E-4	-3.3	-26.9	20.3	1.000	-46.2	-65.7	-26.7	0.000*
5-6	-2.5	-13.8	8.9	1.000	-4.1	-13.4	5.3	0.903
5-7	-1.9	-13.5	9.6	1.000	-3.3	-12.8	6.2	0.978
5-8	-5.1	-16.5	6.3	0.883	-8.9	-18.3	0.5	0.021
5-9	-7.0	-18.5	4.5	0.494	-10.4	-19.9	-0.9	0.003*
5-10	-4.6	-15.9	6.8	0.943	-9.3	-18.7	0.1	0.012
E-5	-2.6	-26.2	21.0	1.000	-44.6	-64.1	-25.1	0.000*
6-7	0.5	-10.9	12.0	1.000	0.7	-8.7	10.2	1.000
6-8	-2.6	-14.0	8.7	0.999	-4.8	-14.2	4.5	0.735
6-9	-4.5	-16.0	6.9	0.945	-6.3	-15.7	3.1	0.335
6-10	-2.1	-13.4	9.2	1.000	-5.2	-14.5	4.1	0.627
E-6	-0.1	-23.7	23.4	1.000	-40.5	-60.0	-21.1	0.000*
7-8	-3.2	-14.7	8.3	0.997	-5.6	-15.1	3.9	0.551
7-9	-5.1	-16.7	6.5	0.894	-7.0	-16.6	2.5	0.198
7-10	-2.6	-14.1	8.8	0.999	-5.9	-15.4	3.5	0.439
E-7	-0.7	-24.3	23.0	1.000	-41.3	-60.8	-21.7	0.000*
8-9	-1.9	-13.4	9.6	1.000	-1.5	-10.9	8.0	1.000
8-10	0.5	-10.8	11.9	1.000	-0.4	-9.7	9.0	1.000
E-8	2.5	-21.1	26.1	1.000	-35.7	-55.2	-16.2	0.000*
9-10	2.5	-9.0	13.9	1.000	1.1	-8.3	10.5	1.000
E-9	4.4	-19.2	28.0	1.000	-34.2	-53.8	-14.7	0.000*
E-10	1.9	-21.6	25.5	1.000	-35.3	-54.8	-15.8	0.000*

Note: Units are in seconds per vehicle. * indicates significance at a 99-percent confidence level.

	BBPSC											
NBBPSC: Bid Class	Bid Class											
	N	1	2	3	4	5	6	7	8	9	10	E
N						●	●	●	●	●	●	●
1						●	●	●	●	●	●	●
2									●	●	●	●
3							●	●	●	●	●	●
4									●	●	●	●
5										●		●
6												●
7												●
8	○											●
9	○	○		○								●
10	○											●
E												

Note: ○ indicates a significant difference with NBBPSC while ● indicates a significant difference with BBPSC.

Figure 13. A significant difference combination matrix by Bid Class.

In **Figure 14**, **A** shows a box plot of vehicle delay by control method and bidder penetration rate. Mean delay was 142.9 (*SD* = 196.1) seconds with NBBPSC and 190.0 (*SD* = 254.1) seconds with BBPSC. Because comparing delay between oversaturated conditions would not provide much meaningful insight into the independent variables, further analysis was conducted in undersaturated conditions (1,000 vph or less on Holleman Drive). In undersaturated conditions, mean delay was 37.7 (*SD* = 30.6) seconds with NBBPSC and 60.7 (*SD* = 57.4) seconds with BBPSC; BBPSC produced a 61.01 percent longer delay. **B** is a box plot of delay by control method and bidder penetration rate in undersaturated conditions. Tukey–Kramer's honest significance test was performed on vehicle delay by penetration rate. At a 99-percent confidence level, the test revealed statistical significance among all combinations of NBBPSC and BBPSC with different penetration rates, with the exception of tests between the following pairs: BBPSC (60 percent) and BBPSC (80 percent) as well as BBPSC (80 percent) and BBPSC (100 percent) (**Table 11**). Among BBPSC, mean delay was the largest when the penetration rate was 20 percent whereas delay was the smallest when the penetration rate was 60, 80, or 100 percent. Altogether, BBPSC resulted in larger mean delay than NBBPSC regardless of the bidder penetration rate. Within BBPSC, smaller mean delay was associated with larger penetration rates.

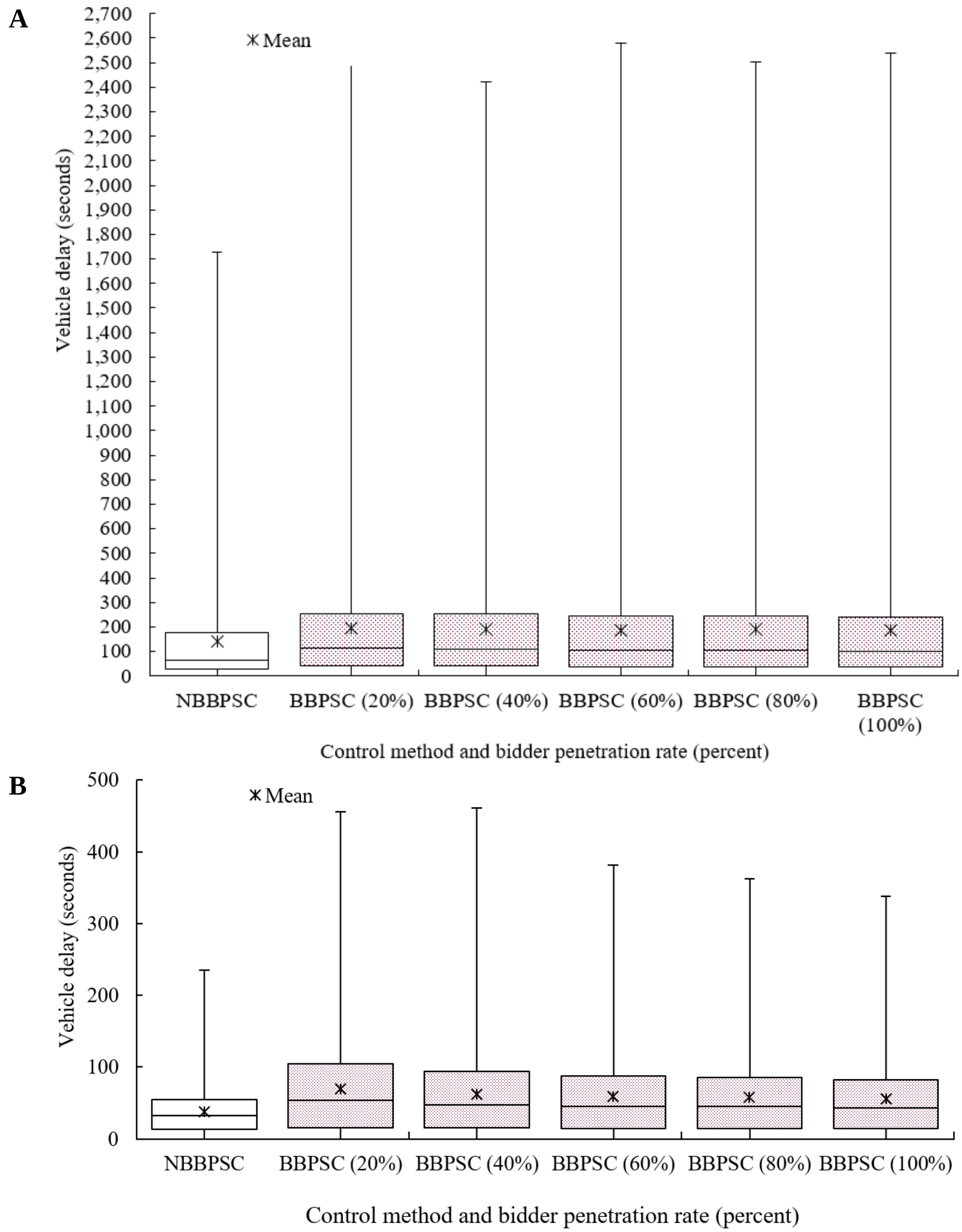


Figure 14. Box plots of vehicle delay by control method and bidder penetration rate.

Table 11 Results of Tukey–Kramer's honest significance test on vehicle delay by penetration rate

Comparison	Difference	99% confidence interval		p
		Lower	Upper	
BBPSC (20%) - NBBPSC	31.8	30.4	33.3	0.000*
BBPSC (40%) - NBBPSC	24.7	23.2	26.2	0.000*
BBPSC (60%) - NBBPSC	20.8	19.3	22.3	0.000*
BBPSC (80%) - NBBPSC	19.7	18.3	21.2	0.000*
BBPSC (100%) - NBBPSC	18.2	16.7	19.7	0.000*
BBPSC (40%) - BBPSC (20%)	-7.2	-9.1	-5.3	0.000*
BBPSC (60%) - BBPSC (20%)	-11.1	-13.0	-9.1	0.000*
BBPSC (80%) - BBPSC (20%)	-12.1	-14.0	-10.2	0.000*
BBPSC (100%) - BBPSC (20%)	-13.7	-15.6	-11.7	0.000*
BBPSC (60%) - BBPSC (40%)	-3.9	-5.8	-2.0	0.000*
BBPSC (80%) - BBPSC (40%)	-4.9	-6.8	-3.0	0.000*
BBPSC (100%) - BBPSC (40%)	-6.5	-8.4	-4.6	0.000*
BBPSC (80%) - BBPSC (60%)	-1.0	-3.0	0.9	0.447
BBPSC (100%) - BBPSC (60%)	-2.6	-4.5	-0.7	0.000*
BBPSC (100%) - BBPSC (80%)	-1.6	-3.5	0.4	0.068

Note: Units are in seconds per vehicle. * indicates significance at a 99-percent confidence level.

A detailed tabulation of delay is included in Appendix A-2.

3.2.2. Queue Length

Queue length comparisons in oversaturated conditions do not provide much meaningful insight into the efficiency of a system because queues simply become longer and longer as the volume of traffic increases. For this reason, mean queue lengths with NBBPSC and BBPSC were compared in undersaturated conditions (when the hourly volume on Holleman Drive was 1,000 vph or less). **Figure 15** shows the change of mean queue lengths per approach with NBBPSC and BBPSC under different bidder penetration rates. Throughout the simulation period, BBPSC experienced longer queue lengths with larger fluctuations ($M^{\dagger}$ = 24.1 ft, $SD^{\dagger}$ = 26.0 ft) than NBBPSC ($M^{\dagger}$ = 14.2 ft, $SD^{\dagger}$ = 15.3 ft).

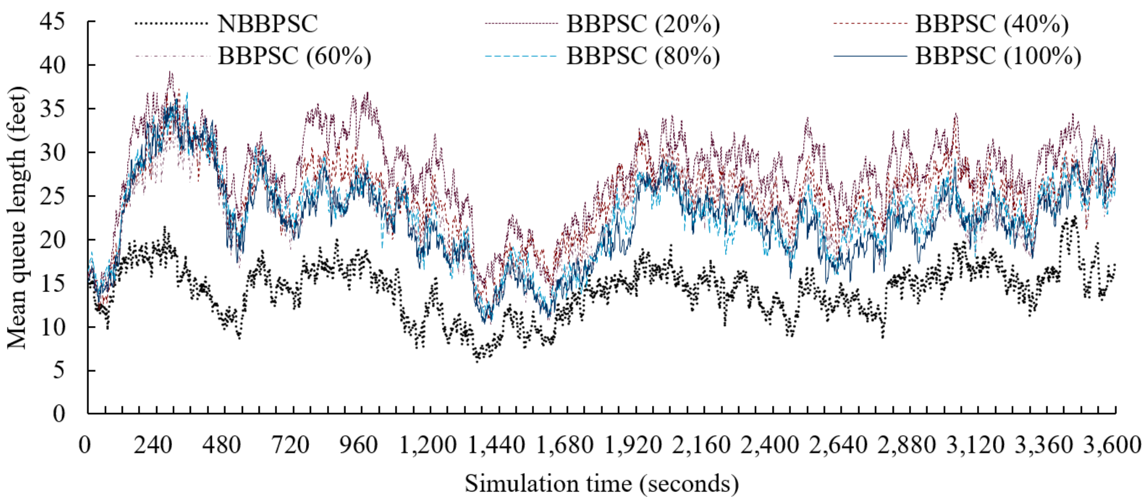


Figure 15. Time series change of mean queue lengths with NBBPSC and BBPSC under different bidder penetration rates.

Figure 16 is a box plot of queue lengths with NBBPSC and BBPSC under different bidder penetration rates. Mean queue length was 14.2 feet† with NBBPSC while it was 24.1 feet† (69.72 percent longer) with BBPSC. As with delay, Tukey–Kramer's honest significance test was conducted on queue length with different penetration rates. The test revealed significant differences among all of the combinations except for BBPSC (60 percent) and BBPSC (80 percent) which both tested at a 99-percent confidence level (**Table 12**). Regardless of the penetration rates, BBPSC resulted in a larger mean queue length than NBBPSC. Among BBPSC, lower penetration rates were associated with a longer queue length.

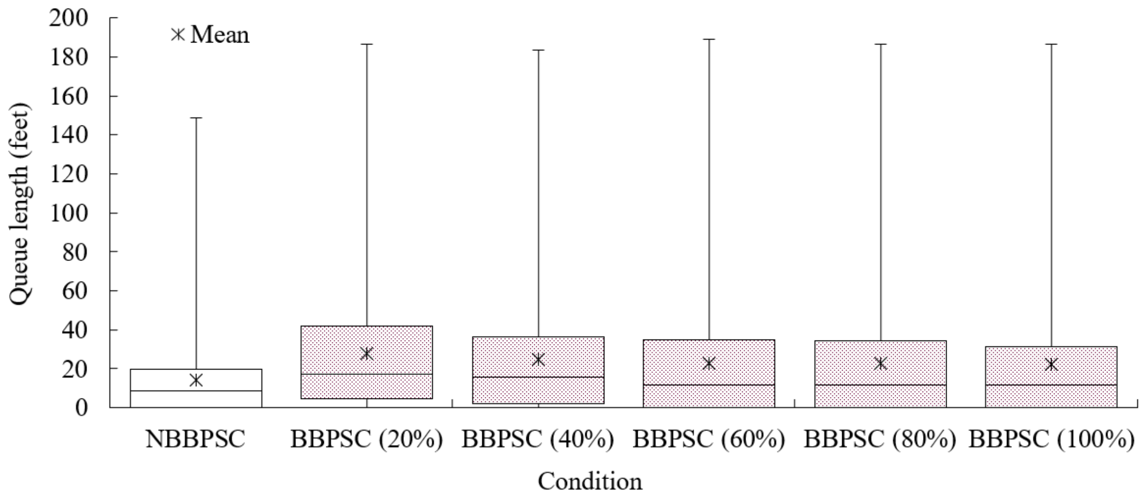


Figure 16. Box plot of queue lengths with NBBPSC and BBPSC under different bidder penetration rates.

Table 12 Results of Tukey–Kramer's honest significance test on queue length by penetration rate

Comparison	Difference	99% confidence interval		p
		Lower	Upper	
BBPSC (20%) - NBBPSC	13.4	13.2	13.7	0.000*
BBPSC (40%) - NBBPSC	10.4	10.2	10.7	0.000*
BBPSC (60%) - NBBPSC	8.7	8.5	9.0	0.000*
BBPSC (80%) - NBBPSC	8.6	8.3	8.8	0.000*
BBPSC (100%) - NBBPSC	8.0	7.7	8.2	0.000*
BBPSC (40%) - BBPSC (20%)	-3.0	-3.3	-2.7	0.000*
BBPSC (60%) - BBPSC (20%)	-4.7	-5.0	-4.4	0.000*
BBPSC (80%) - BBPSC (20%)	-4.9	-5.2	-4.5	0.000*
BBPSC (100%) - BBPSC (20%)	-5.5	-5.8	-5.2	0.000*
BBPSC (60%) - BBPSC (40%)	-1.7	-2.0	-1.4	0.000*
BBPSC (80%) - BBPSC (40%)	-1.8	-2.1	-1.5	0.000*
BBPSC (100%) - BBPSC (40%)	-2.5	-2.8	-2.1	0.000*
BBPSC (80%) - BBPSC (60%)	-0.2	-0.5	0.2	0.547
BBPSC (100%) - BBPSC (60%)	-0.8	-1.1	-0.5	0.000*
BBPSC (100%) - BBPSC (80%)	-0.6	-0.9	-0.3	0.000*

Note: Units are in seconds per vehicle. * indicates significance at a 99-percent confidence level.

3.2.3. User Benefit

The mean user benefit was calculated by Bid Class (**Table 13**). Regardless of the penetration rates, mean user benefits were negative for all bidders except for Bid Class E (emergency vehicles that placed USD 999.00). For the hourly vehicular volume on Holleman Drive the user benefit, mean correlation coefficient of Bid Class N through 10 was -0.831 while that of Bid Class E was 0.707, indicating that a larger hourly vehicular volume was associated with larger mean user benefit. When the hourly vehicular volume on Holleman Drive was 1,200 vph, Bid Class E experienced negative user benefit with

80- and 100-percent penetration rates. For vehicular volume, the largest losses for Bid Class N through 10 were observed when the volume on Holleman Drive was 1,400 vph. Among Bid Class N through 10, a higher Bid Class tended to result in smaller mean user benefit. User benefit was positive throughout all the penetration rates in Bid Class E. Mean user benefit was the largest when the penetration rate was 20 percent ($M^{\dagger}$ = USD 42,891.39) and the smallest when the penetration rate was 80 percent ($M^{\dagger}$ = USD 30,970.93).

Table 13 Mean user benefit by penetration rate, volume, and Bid Class

Penetration rate	Bid class	Hourly vehicle volume on Holleman Drive (both approaches; vph) 400	600	800	1,000	1,200	1,400	1,600	M†
20%	N	-$0.27	-$0.35	-$0.43	-$0.42	-$0.87	-$0.96	-$0.51	-$0.54
	1	-$0.96	-$1.62	-$1.89	-$1.99	-$4.75	-$5.44	-$0.06	-$2.39
	2	-$1.99	-$3.06	-$4.07	-$5.38	-$10.84	-$10.00	$2.57	-$4.68
	3	-$0.70	-$2.97	-$6.25	-$5.92	-$17.68	-$14.85	-$13.58	-$8.85
	4	-$1.45	-$4.30	-$7.03	-$3.97	-$26.99	-$34.35	-$27.22	-$15.04
	5	$4.62	-$6.17	-$6.77	-$8.94	-$19.65	-$35.76	-$17.47	-$12.88
	6	$1.80	-$3.45	-$5.92	-$10.19	-$26.62	-$37.21	-$19.48	-$14.44
	7	$4.37	$1.61	-$10.86	-$12.73	-$37.62	-$39.78	-$54.41	-$21.34
	8	$4.45	$4.42	-$3.94	-$10.58	-$38.47	-$39.44	-$25.60	-$15.59
	9	$8.34	$10.44	$2.80	-$8.39	-$50.48	-$61.21	-$27.40	-$17.99
	10	$1.74	$10.27	-$7.92	-$4.69	-$44.20	-$54.46	$5.85	-$13.34
	E	$15,180.14	$22,129.44	$25,763.08	$32,855.85	$2,515.91	$72,175.26	$113,473.66	$40,584.76
40%	N	-$0.24	-$0.28	-$0.33	-$0.37	-$0.97	-$0.92	-$0.24	-$0.48
	1	-$0.74	-$1.46	-$2.03	-$1.93	-$5.09	-$5.73	-$0.42	-$2.48
	2	-$2.15	-$2.33	-$3.92	-$4.98	-$13.03	-$13.56	-$2.60	-$6.08
	3	-$3.99	-$5.17	-$6.33	-$7.28	-$19.18	-$28.43	-$18.10	-$12.64
	4	-$1.52	-$5.95	-$7.41	-$11.32	-$28.28	-$25.62	-$7.48	-$12.51
	5	-$0.54	-$3.05	-$9.98	-$8.01	-$37.17	-$34.59	-$17.48	-$15.83
	6	$0.29	-$6.81	-$9.39	-$13.88	-$48.12	-$48.50	-$2.02	-$18.35
	7	$2.29	-$4.36	-$8.90	-$10.32	-$49.13	-$53.01	-$14.84	-$19.75
	8	$1.09	-$3.13	-$9.06	-$12.04	-$42.74	-$60.23	-$17.89	-$20.57
	9	$3.10	-$0.88	-$14.35	-$15.55	-$55.32	-$80.07	-$21.80	-$26.41
	10	$3.14	$4.55	-$8.01	-$13.73	-$74.71	-$74.08	-$4.13	-$23.85
	E	$14,939.05	$22,128.97	$26,061.63	$34,198.70	$2,531.06	$77,375.47	$123,004.87	$42,891.39
60%	N	-$0.20	-$0.22	-$0.28	-$0.33	-$0.82	-$0.83	-$0.55	-$0.46
	1	-$1.02	-$1.31	-$1.52	-$2.14	-$5.01	-$5.89	-$2.91	-$2.83
	2	-$2.35	-$2.90	-$4.59	-$5.08	-$12.37	-$15.05	-$11.60	-$7.71
	3	-$3.67	-$3.80	-$7.49	-$7.64	-$22.35	-$23.44	-$11.04	-$11.35
	4	-$2.80	-$5.01	-$9.13	-$9.70	-$25.72	-$32.05	-$17.86	-$14.61
	5	-$3.07	-$4.13	-$7.31	-$11.47	-$30.90	-$36.14	-$25.03	-$16.86
	6	-$3.34	-$6.06	-$11.74	-$14.80	-$35.52	-$45.22	-$34.37	-$21.58
	7	$0.57	-$9.09	-$9.16	-$12.61	-$43.12	-$41.99	-$34.57	-$21.43
	8	$0.38	-$6.15	-$12.04	-$15.84	-$56.02	-$57.94	-$10.83	-$22.63
	9	$0.12	-$4.49	-$14.35	-$18.71	-$52.57	-$62.76	-$55.45	-$29.74
	10	-$1.38	$1.01	-$13.81	-$18.11	-$48.64	-$68.32	-$35.48	-$26.39
	E	$15,180.14	$22,129.44	$25,950.59	$35,301.14	$4,768.16	$85,662.01	$75,127.80	$37,731.33
80%	N	-$0.19	-$0.19	-$0.27	-$0.31	-$0.95	-$0.90	-$0.66	-$0.50
	1	-$0.92	-$1.27	-$1.73	-$1.56	-$4.79	-$6.39	-$5.40	-$3.15
	2	-$1.88	-$3.02	-$3.95	-$5.00	-$15.20	-$15.62	-$13.19	-$8.27
	3	-$2.76	-$4.21	-$6.98	-$7.86	-$20.29	-$21.47	-$15.75	-$11.33
	4	-$2.88	-$6.48	-$8.16	-$11.75	-$30.97	-$35.23	-$35.75	-$18.75
	5	-$4.13	-$6.60	-$12.58	-$14.45	-$41.00	-$42.49	-$33.19	-$22.06
	6	-$3.19	-$7.83	-$9.33	-$12.42	-$41.74	-$46.89	-$30.85	-$21.75
	7	-$2.84	-$9.68	-$12.09	-$15.77	-$49.16	-$57.23	-$56.74	-$29.07
	8	-$4.57	-$8.52	-$13.08	-$14.78	-$59.75	-$53.19	-$40.24	-$27.73
	9	-$3.03	-$8.70	-$13.78	-$19.58	-$66.29	-$68.27	-$72.07	-$35.96
	10	-$2.50	-$4.42	-$14.23	-$20.95	-$54.81	-$77.01	-$62.36	-$33.75
	E	$15,184.80	$22,131.35	$26,060.48	$33,093.68	-$10,677.38	$64,917.52	$66,086.10	$30,970.93
100%	N	$0.10	-$0.27	-$0.23	-$0.31	-$0.77	-$0.45	-$0.09	-$0.29
	1	-$0.90	-$0.78	-$1.31	-$2.02	-$4.85	-$6.42	-$3.73	-$2.86
	2	-$1.87	-$2.20	-$3.23	-$5.08	-$12.59	-$9.92	-$5.26	-$5.74
	3	-$2.51	-$3.49	-$6.04	-$7.21	-$19.81	-$23.01	-$21.78	-$11.98
	4	-$2.70	-$4.00	-$7.86	-$10.85	-$29.69	-$30.10	-$16.23	-$14.49
	5	-$2.69	-$4.47	-$10.05	-$13.91	-$33.49	-$45.85	-$28.54	-$19.86
	6	-$4.69	-$7.44	-$13.16	-$16.21	-$44.77	-$44.75	-$41.08	-$24.59
	7	-$3.01	-$7.41	-$11.38	-$16.81	-$47.53	-$63.70	-$40.55	-$27.20
	8	-$2.54	-$7.62	-$13.92	-$19.19	-$47.53	-$65.48	-$52.72	-$29.86
	9	-$4.37	-$6.74	-$12.30	-$20.93	-$58.50	-$58.11	-$28.55	-$27.07
	10	-$3.34	-$4.88	-$16.06	-$23.39	-$55.83	-$75.65	-$62.94	-$34.58
	E	$15,180.14	$22,131.35	$25,946.75	$34,039.83	-$2,701.12	$61,560.88	$61,902.04	$31,151.41
All	N	-$0.24	-$0.28	-$0.35	-$0.38	-$0.90	-$0.91	-$0.45	-$0.50
	1	-$0.91	-$1.15	-$1.59	-$1.90	-$4.89	-$6.18	-$3.45	-$2.87
	2	-$2.03	-$2.65	-$3.86	-$5.07	-$13.19	-$12.99	-$7.77	-$6.79
	3	-$2.96	-$3.95	-$6.64	-$7.39	-$20.27	-$23.13	-$16.99	-$11.62
	4	-$2.51	-$5.22	-$8.07	-$10.56	-$28.94	-$31.46	-$21.16	-$15.42
	5	-$2.45	-$4.91	-$10.05	-$12.49	-$34.75	-$40.77	-$26.66	-$18.87
	6	-$3.01	-$6.87	-$10.95	-$14.29	-$41.16	-$45.27	-$30.68	-$21.75
	7	-$1.12	-$7.33	-$10.83	-$14.64	-$46.70	-$54.81	-$41.82	-$25.32
	8	-$1.55	-$6.14	-$11.96	-$15.83	-$50.99	-$58.29	-$34.80	-$25.65
	9	-$1.14	-$4.73	-$12.22	-$18.36	-$58.14	-$65.21	-$44.28	-$29.15
	10	-$1.53	-$1.36	-$13.52	-$19.19	-$55.84	-$72.95	-$44.61	-$29.86
	E	$15,132.85	$22,130.11	$25,956.50	$33,897.84	-$728.98	$72,363.30	$87,918.90	$36,667.22

The total user benefits by vehicular volume and Bid Class are presented in **Table 14**. The amount is mean user benefit multiplied by the mean number of vehicles in each condition, indicating mean total user benefit perceived in the corresponding scenarios. The total row indicates higher vehicular volume was associated with a larger user benefit except for the volume on Holleman Drive was 1,200 vph, when BBPSC resulted in negative user benefit (USD -211,943) in total. Alike **Table 13**, observed losses for Bid Class N through 10 were the largest when the hourly vehicular volume on Holleman Drive was 1,400 vph.

Table 14 Total user benefit by vehicular volume and Bid Class

Bid Class	Hourly vehicle volume on Holleman Drive (both approaches; vph)							Total
	400	600	800	1,000	1,200	1,400	1,600	
N	-$366	-$550	-$812	-$1,010	-$2,654	-$2,715	-$1,345	-$9,453
1	-$182	-$294	-$484	-$670	-$1,877	-$2,409	-$1,354	-$7,269
2	-$487	-$784	-$1,358	-$2,091	-$6,016	-$5,952	-$3,531	-$20,219
3	-$684	-$1,142	-$2,310	-$3,035	-$9,182	-$10,692	-$7,873	-$34,918
4	-$612	-$1,551	-$2,816	-$4,331	-$12,878	-$14,210	-$9,480	-$45,878
5	-$597	-$1,475	-$3,586	-$5,188	-$15,752	-$18,754	-$12,193	-$57,546
6	-$761	-$2,133	-$4,027	-$6,129	-$19,125	-$21,234	-$14,265	-$67,672
7	-$273	-$2,180	-$3,751	-$5,905	-$20,484	-$24,645	-$18,681	-$75,919
8	-$374	-$1,863	-$4,295	-$6,634	-$23,182	-$26,986	-$16,065	-$79,399
9	-$272	-$1,409	-$4,301	-$7,499	-$25,988	-$29,408	-$19,660	-$88,536
10	-$357	-$403	-$4,985	-$8,253	-$26,451	-$34,774	-$21,085	-$96,307
E	$378,321	$774,554	$1,124,782	$1,751,388	-$48,356	$4,848,341	$5,861,260	$14,690,291
Total	$373,356	$760,770	$1,092,057	$1,700,642	-$211,943	$4,656,563	$5,735,728	$14,107,173

3.3. Discussion

This subsection interprets the results of the microsimulations. The limitations of the microsimulations are addressed in the next section.

3.3.1. Vehicle Delay

Both in NBBPSC and BBPSC, higher vehicular volume on a major street resulted in a larger delay on average. Comparing the control methods, a larger delay was observed with BBPSC than with NBBPSC at the same vehicular volume. Hence, BBPSC broke down with a lighter volume than NBBPSC. The variance in delay was also larger with BBPSC than NBBPSC, indicating that the new signal control method had more flexibility in phase termination when compared to NBBPSC. These observations were not surprising because the objective function of BBPSC was opportunity loss rather than delay itself, while NBBPSC had a cumulative delay as an objective function. These results imply that BBPSC caused "turbulence" in queues while the other signal control method focused on discharging long queues.

BBPSC worked even in a signal controller with a four-phase operation. BBPSC prioritized high bidders as higher bids resulted in smaller delay on average. In particular, the benefit was more obvious among extremely high bidders (Bid Class E) as they were the only Bid Class that had significantly shorter delays than the other Bid Classes. In undersaturated conditions, Bid Class E experienced more than 90 percent smaller delay compared to the same Bid Class with NBBPSC. With BBPSC, Bid Class E also had smaller delays compared to the other bidders in BBPSC even when traffic volume on the major street reached its heaviest levels (1,400–1,600 vph). While this implies that drivers need to make a significant number of high bids to take advantage of this technology, it is also indicated that extremely high bidders might be constantly prioritized. This finding was noteworthy because it suggests that BBPSC could be applicable not only at two-phase signal controllers but also at many other signal controllers that have more than two phases. As **Figure 10** shows, the queues in front of emergency vehicles (Bid Class E) were often cleared before the high bidders arrived at the intersection. This indicates that BBPSC worked as intended. However, this result also implies that some space-time was sacrificed in terms of the total delay in the system because the lanes on which the emergency vehicles approached might have had an "unnecessarily" lower density as "freeriding" vehicles were observed in front of the emergency vehicles.

Within BBPSC, smaller mean delay was associated with larger penetration rates. Mean delay was the largest when the penetration rate was 20 percent whereas delay was the smallest when the penetration rate was 60, 80, or 100 percent. This result was intuitive: the turbulence to the vehicles in the network was larger when a smaller percentage of drivers affected the signal control than in situations in which the majority of road users bidded for the desired indications.

3.3.2. Queue Length

Overall, queue length showed similar trends with delay since delay lengthened when vehicles were accumulated in the queues. The observed mean queue length with BBPSC was nearly 70 percent longer than that of NBBPSC. This was a side effect of BBPSC. Because once queue spillback occurs, other road facilities located upstream (e.g., intersections closely separated from each other) may also be affected by the queue.

Considering that BBPSC experienced 70 percent longer queue than NBBPSC, queue spillback would occur more frequently with BBPSC. The larger variance in queue length with BBPSC indicated that the new signal control method had more flexibility in phase termination than NBBPSC. With BBPSC, lower penetration rates were associated with longer queue length. Like delay, the differences were small once the penetration rate hit 60 percent. It was expected that turbulence to queues would be relatively large when signal timings are controlled by a small percentage of road users.

3.3.3. User Benefit

In this research, user benefit refers to the observed loss in BBPSC (case alternative) minus the observed loss in NBBPSC (base case). Because VOT is not necessarily linear, this aggregated "user benefit" might not necessarily indicate the absolute values of VOT. However, VOT provides some means of evaluating the relative effects of BBPSC. For Bid Class N through 10, bidders tended to experience longer delay with BBPSC than with NBBPSC whereas mean user benefit was positive in Bid Class E. In other words, user benefits for all of the Bid Classes besides Bid Class E were sacrificed for Bid Class E with BBPSC. Even high bidders in Bid Class N through 10 tended to experience larger losses because their bids were too insignificant to be considered once emergency vehicles appeared within the bidding horizon. This implies that bidders need to outbid other bidders to receive signal priority.

The reason that Bid Class E experienced negative user benefit with 80- and 100-percent penetration rates is not clear. One possible reason is that BBPSC broke down with 1,000 vph while NBBPSC did not break down until Holleman Drive's traffic reached 1,200 vph (**Figure 11**). Because of this, BBPSC in 1,200 vph traffic might have had the least relative efficiency compared to BBPSC in the same volume conditions.

4. CONCLUSION*

This thesis introduced the concept of BBPSC and investigated its characteristics in microsimulations. The effects were discussed through magnitude change of delay, queue length, and user benefit in relation to vehicular volume, bidding values, and penetration rate. The significance of this research lies in the following findings:

(i) On average, BBPSC provided a smaller delay to high bidders even with a four-phase signal control.

(ii) High bidders tended to experience smaller delay than lower bidders. This effect was especially significant among exceptionally high bidders (e.g., emergency vehicles). Their relative superiority was more attenuated in saturated conditions than in undersaturated conditions as they experienced more than 90 percent smaller delay than the other vehicles on average in undersaturated conditions.

(iii) Given the same traffic volume in undersaturated conditions, BBPSC produced about 70 percent longer queues on average than NBBPSC. As a result, a reasonable expectation of the maximum number of vehicles that can be served was smaller with BBPSC than NBBPSC.

The main goal of BBPSC was to control green time allocations based not only on queue length or delay, but also on bids as the subjective perception of VOT. The results

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* Part of this section is reprinted with permission from "Bid-Based Priority Signal Control in a Connected Environment: Concept" by Iio, Kentaro, Yunlong Zhang, and Luca Quadrifoglio, 2019. *Transportation Research Record: Journal of the Transportation Research Board*, https://doi.org/10.1177/0361198119855981, Copyright 2019 Sage Publications, Incorporated.

were intuitive as BBPSC achieved traffic signal controls that were more “responsive” to road users’ bids. At the same time, BBPSC could be a double-edged sword because intersections will experience side effects, such as larger delay for non- or small bidders and a longer average queue length.

Limitations and Future Implications

This subsection describes several limitations of this thesis as well as future implications.

First, as other researchers also point out (*25*), new signal control methods often lack empirical data to help researchers select the best key parameters. Although the author set arbitrary values for the length of bidding horizons and the expected red time, better values should be sought based on past experience because they are a crucial part of the algorithm. In the meantime, it is important to note that there may be no “absolutely right” settings at real intersections because the meaning of optimality can vary from situation to situation, and every intersection is different.

This thesis focused on simulating an isolated intersection. However, the effects of the algorithm should be assessed in a road network too, especially because vehicle occupants may want to bid for a green indication in a congested urban environment. When signalized intersections are located near each other, it can be more difficult to estimate vehicle arrival time based on real-time locations and speed because vehicles may need to stop more frequently in such conditions than in the simulated conditions. Since vehicles in a bidding horizon may turn into side streets before arriving at an intersection with BBPSC, it would also be challenging to determine which vehicles in upstream will actually proceed through the intersection. On the other hand, traffic control signal coordination may be less necessary when BBPSC is well implemented in a roadway network because BBPSC could automatically recognize platoons and give priority to them.

In addition, future work should investigate how to achieve efficient BBPSC in high-volume or oversaturated conditions. Because opportunity loss is merely relative, the algorithms used in this research balanced out the opportunity losses or user benefits experienced by road users in each movement group. As time goes on, each group's user benefit becomes more similar. Therefore, BBPSC can create a situation in which green time approaches frequently end up at the minimum green time, making the effective green time shorter than what is derived from optimal cycle length.

Eventually, BBPSC could be an integrated form of priority control because preemption, TSP, and other signal priority control methods share the same ideology (**Figure 17**). If the system is introduced on transit vehicles, it could function as TSP, and it could provide preemption to emergency vehicles. Since these concepts are qualitatively the same, the only action agencies would be required to take would be to adjust bids (e.g., ∞ for trains and ∞ - 1 for emergency vehicles). Such integration would allow manufacturers to provide the infrastructure at reduced costs since they would not have to produce different devices for different concepts or purposes. To achieve this integration of different concepts, some sort of regional or national specifications or at least de-facto standards would be needed; otherwise, bidders would be confused if they can bid for ROW at certain intersections and cannot bid at other intersections.

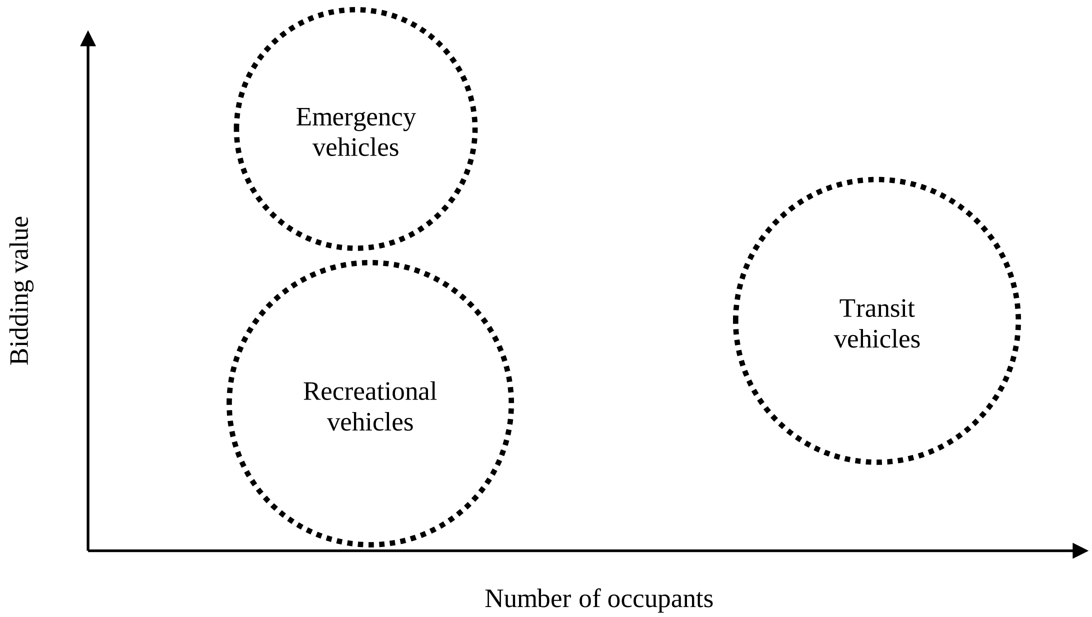

Figure 17. Concepts of signal priory control (Iio et al., 2019).

The author did not consider pedestrians or cyclists. In reality, in an intersection with pedestrian crossings, signal timings can be affected by pedestrian calls. For example, a minimum green time for vehicular movements may be less flexible when there is a pedestrian crossing. To provide reasonable mobility to different road users, future work should consider if or how BBPSC would work within mixed-flow environments with non-vehicular road users.

Besides engineering studies, it may also be valuable to conduct studies in social sciences. For example, an interesting facet to consider is the acceptance of this technology before a real-world implementation. BBPSC will not work if there is significant opposition from the general population. Although the purchase of time has been put into practice through tolls and other queueing methods including theme parks (*37*), people's attitudes toward the potentially emerging technology are still unknown. In fact, an argument could be made for society's unwillingness to widely accept the commoditization of things that have not previously been perceived as commodities (*38*). Additionally, an individual's ability to pay is not likely to be proportional to the individual's VOT when the payment source is each driver's disposable income; thus, some people may think "the rich" would be favored and might not support the idea of bidding itself. Others might ask if vehicle users without any connected environment should be ignored in the bidding process. At the same time, it is also questionable how "equal" it would be to assume a homogeneous VOT for the ROW allocation that sacrifices some users' VOT. These perspectives are philosophical arguments and should be discussed in the future. Although some communities might like the idea, it may be difficult to reach a global consensus on this issue as long as people have different opinions. To bid or not to bid, that is the question.

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APPENDIX A-1

PYTHON SCRIPTS FOR PTV VISSIM WITH COM INTERFACE

```
# <NOTE>
    # PTV VISSIM (64 BIT) 10.00-05
    # THE SIMULATION RESOLUTION HAS TO BE 10 TIME STEPS/SIMULATION SECONDS

# INITIALIZATION
def init():

# ------- DO NOTHING -------

    return

# MAIN
def main():
# ------- SET MINIMUM GREEN INTERVAL -------

    YellowChange = 3   # SECONDS
    RedClearance = 2   # SECONDS
    MinimumGreen = 15   # SECONDS



# ------- FETCH CURRENT TIMES -------

    Jikoku = Vissim.Simulation.AttValue('SimSec')

    if Jikoku < 5:
        Henkojikoku = 0
        SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', 0)    #
Henkojikoku IS 0 WHEN Jikoku (SimSec) IS LESS THAN 5 SECONDS (INITIALIZATION)
    else:
        Henkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).AttValue('Henkojikoku')
    Keikajikan = Jikoku - Henkojikoku


    ProgNo = Vissim.Net.SignalControllers.ItemByKey(5).AttValue('ProgNo2')


# ------- IDENTIFY CurrentlyMovingLink -------
# Genji: 1 = RED, 3 = GREEN, 4 = AMBER

    Ind_1 = Vissim.Net.SignalHeads.ItemByKey(1).AttValue('Genji')
    Ind_2 = Vissim.Net.SignalHeads.ItemByKey(2).AttValue('Genji')
    Ind_3 = Vissim.Net.SignalHeads.ItemByKey(3).AttValue('Genji')
    Ind_4 = Vissim.Net.SignalHeads.ItemByKey(4).AttValue('Genji')
    Ind_5 = Vissim.Net.SignalHeads.ItemByKey(5).AttValue('Genji')
    Ind_6 = Vissim.Net.SignalHeads.ItemByKey(6).AttValue('Genji')
    Ind_7 = Vissim.Net.SignalHeads.ItemByKey(7).AttValue('Genji')
    Ind_8 = Vissim.Net.SignalHeads.ItemByKey(8).AttValue('Genji')

    MovingLinkList = [383, 253, 473, 163, 253, 473, 163, 383, 473, 163, 383, 253, 163, 383, 253, 473]
    SignalControllProgNo = ProgNo   # ProgNo IS UPDATED ONLY WHEN A GREEN INTERVAL IS TERMINATED
    CurrentlyMovingLink = MovingLinkList[SignalControllProgNo - 1]  # SELECT A CORRESPONDING LINK NUMBER


# ------- IDENTIFY Stage -------

    # Identify the current Stage based on the current indications
    if Ind_1*Ind_2*Ind_3*Ind_4*Ind_5*Ind_6*Ind_7*Ind_8 == 16:
        Stage = 1   # YELLOW CHANGE INTERVAL
    elif Ind_1*Ind_2*Ind_3*Ind_4*Ind_5*Ind_6*Ind_7*Ind_8 == 1:
        Stage = 2   # RED CLEARANCE INTERVAL
    else:
        Stage = 3   # GREEN INTERVAL
```

```
    JotaiHash = SignalControllProgNo * 10000 + Stage * 1000 + Keikajikan


# ------- UPDATE SMALL PHI FOR PHI_1 -------

    SmallPhi_1 = 0  # INITIALIZATION
    Vehicles = Vissim.Net.Links.ItemByKey(str(CurrentlyMovingLink)).Vehs.GetAll()  # GET ALL VEHICLES ON
CurrentlyMovingLink
    for Vehicle in Vehicles:
        Ksi = Vehicle.AttValue('ExpectedLoss')
        if Ksi >= 0:
            SmallPhi_1 = SmallPhi_1 + Ksi
        else:
            Nanimoshinai = 0
    SetSmallPhi_1 =
Vissim.Net.Links.ItemByKey(str(CurrentlyMovingLink)).SetAttValue('SmallPhi',str(SmallPhi_1))


# ------- UPDATE SMALL PHI FOR PHI_2 -------

    if Stage == 3 and Keikajikan >= MinimumGreen - 0.1:

        SmallPhiLinks = [163, 253, 383, 473]    # THERE ARE ALL LINKS
        SmallPhiLinks.remove(CurrentlyMovingLink)   # REMOVE CurrentlyMovingLink FROM THE LIST
        CurrentlyStoppingLinks = SmallPhiLinks  # THE REMAINING LINKS IN THE LIST ARE CurrenlyStoppingLinks

        # CurrentlyStoppingLink_1
        CurrentlyStoppingLink_1 = CurrentlyStoppingLinks[0]
        SmallPhi_21 = 0
        Vehicles = Vissim.Net.Links.ItemByKey(str(CurrentlyStoppingLink_1)).Vehs.GetAll()
        for Vehicle in Vehicles:
            Ksi = Vehicle.AttValue('ObservedLoss')
            SmallPhi_21 = SmallPhi_21 + Ksi
        SetSmallPhi_21 =
Vissim.Net.Links.ItemByKey(str(CurrentlyStoppingLink_1)).SetAttValue('SmallPhi',str(SmallPhi_21))

        # CurrentlyStoppingLink_2
        CurrentlyStoppingLink_2 = CurrentlyStoppingLinks[1]
        SmallPhi_22 = 0
        Vehicles = Vissim.Net.Links.ItemByKey(str(CurrentlyStoppingLink_2)).Vehs.GetAll()
        for Vehicle in Vehicles:
            Ksi = Vehicle.AttValue('ObservedLoss')
            SmallPhi_22 = SmallPhi_22 + Ksi
        SetSmallPhi_22 =
Vissim.Net.Links.ItemByKey(str(CurrentlyStoppingLink_2)).SetAttValue('SmallPhi',str(SmallPhi_22))

        # CurrentlyStoppingLink_3
        CurrentlyStoppingLink_3 = CurrentlyStoppingLinks[2]
        SmallPhi_23 = 0
        Vehicles = Vissim.Net.Links.ItemByKey(str(CurrentlyStoppingLink_3)).Vehs.GetAll()
        for Vehicle in Vehicles:
            Ksi = Vehicle.AttValue('ObservedLoss')
            SmallPhi_23 = SmallPhi_23 + Ksi
        SetSmallPhi_23 =
Vissim.Net.Links.ItemByKey(str(CurrentlyStoppingLink_3)).SetAttValue('SmallPhi',str(SmallPhi_23))

        SmallPhis_2 = [SmallPhi_21, SmallPhi_22, SmallPhi_23]
        # AT THIS MOMENT, ALL OBSERVED LOSSES FOR A TIME STEP ARE SET


# ------- COMPARE SMALLPHI TO IDENTIFY NecessityOfPhaseTransfer -------#

        if max([SmallPhi_21, SmallPhi_22, SmallPhi_23]) > SmallPhi_1:
            NecessityOfPhaseTransfer = 1
        else:
            NecessityOfPhaseTransfer = 0


# ------- IDENTIFY NextProgNo AT THE END OF MINIMUM GREEN TIME -------#
```

```
    if Stage == 3 and Keikajikan >= MinimumGreen - 0.1 and NecessityOfPhaseTransfer == 1:
        Bango = SmallPhis_2.index(max(SmallPhis_2)) #<--INDEX OF THE MAX VALUE (ASCENDING ORDER)
        IdentifyMaxSmallPhiLinks = [163, 253, 383, 473] #All links
        IdentifyMaxSmallPhiLinks.remove(CurrentlyMovingLink)    #Remove the currently moving link
        NextMovingLink = IdentifyMaxSmallPhiLinks.pop(Bango)
        NextProgNoHash = CurrentlyMovingLink * 1000 + NextMovingLink
        ProgNoHashes = [163383, 163253, 163473, 383163, 383253, 383473, 253163, 253383, 253473, 473163, 473383,
473253]
        NextProgNo = ProgNoHashes.index(NextProgNoHash) + 1


#------- CHANGE SIGNAL INDICATIONS -------

    # GREEN -> YELLOW CHANGE

        #STOP A (163)
        if SignalControllProgNo in [4, 7, 10] and NextProgNo in [1, 2, 3]:
            SG_number = 1
            new_state_A = "AMBER"
            new_state_B = "RED"
            new_state_C = "RED"
            new_state_D = "RED"
            SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
            SignalGroup = SignalController.SGs.ItemByKey(1)
            SignalGroup.SetAttValue("SigState", new_state_A)
            SignalGroup = SignalController.SGs.ItemByKey(2)
            SignalGroup.SetAttValue("SigState", new_state_B)
            SignalGroup = SignalController.SGs.ItemByKey(3)
            SignalGroup.SetAttValue("SigState", new_state_C)
            SignalGroup = SignalController.SGs.ItemByKey(4)
            SignalGroup.SetAttValue("SigState", new_state_D)
            SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)
            ProgNo = NextProgNo
            SetProgNo2 = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('ProgNo2', NextProgNo)

        #STOP B (383)
        elif SignalControllProgNo in [1, 8, 11] and NextProgNo in [4, 5, 6]:
            SG_number = 1
            new_state_A = "RED"
            new_state_B = "AMBER"
            new_state_C = "RED"
            new_state_D = "RED"
            SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
            SignalGroup = SignalController.SGs.ItemByKey(1)
            SignalGroup.SetAttValue("SigState", new_state_A)
            SignalGroup = SignalController.SGs.ItemByKey(2)
            SignalGroup.SetAttValue("SigState", new_state_B)
            SignalGroup = SignalController.SGs.ItemByKey(3)
            SignalGroup.SetAttValue("SigState", new_state_C)
            SignalGroup = SignalController.SGs.ItemByKey(4)
            SignalGroup.SetAttValue("SigState", new_state_D)
            SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)
            ProgNo = NextProgNo
            SetProgNo2 = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('ProgNo2', NextProgNo)

        #STOP C (253)
        elif SignalControllProgNo in [2, 5, 12] and NextProgNo in [7, 8, 9]:
            SG_number = 1
            new_state_A = "RED"
            new_state_B = "RED"
            new_state_C = "AMBER"
            new_state_D = "RED"
            SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
            SignalGroup = SignalController.SGs.ItemByKey(1)
            SignalGroup.SetAttValue("SigState", new_state_A)
            SignalGroup = SignalController.SGs.ItemByKey(2)
            SignalGroup.SetAttValue("SigState", new_state_B)
            SignalGroup = SignalController.SGs.ItemByKey(3)
            SignalGroup.SetAttValue("SigState", new_state_C)
            SignalGroup = SignalController.SGs.ItemByKey(4)
            SignalGroup.SetAttValue("SigState", new_state_D)
            SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)
            ProgNo = NextProgNo
            SetProgNo2 = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('ProgNo2', NextProgNo)
```

```python
    #STOP D (473)
    elif SignalControllProgNo in [3, 6, 9] and NextProgNo in [10, 11, 12]:
        SG_number = 1
        new_state_A = "RED"
        new_state_B = "RED"
        new_state_C = "RED"
        new_state_D = "AMBER"
        SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
        SignalGroup = SignalController.SGs.ItemByKey(1)
        SignalGroup.SetAttValue("SigState", new_state_A)
        SignalGroup = SignalController.SGs.ItemByKey(2)
        SignalGroup.SetAttValue("SigState", new_state_B)
        SignalGroup = SignalController.SGs.ItemByKey(3)
        SignalGroup.SetAttValue("SigState", new_state_C)
        SignalGroup = SignalController.SGs.ItemByKey(4)
        SignalGroup.SetAttValue("SigState", new_state_D)
        SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)
        ProgNo = NextProgNo
        SetProgNo2 = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('ProgNo2', NextProgNo)

# YELLOW CHANGE -> RED CLEARANCE

if Stage == 1 and Keikajikan < YellowChange - 0.1:
    Nanimoshinai = 0
elif Stage == 1 and Keikajikan >= YellowChange - 0.1:
    SG_number = 1
    new_state_A = "RED"
    new_state_B = "RED"
    new_state_C = "RED"
    new_state_D = "RED"
    SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
    SignalGroup = SignalController.SGs.ItemByKey(1)
    SignalGroup.SetAttValue("SigState", new_state_A)
    SignalGroup = SignalController.SGs.ItemByKey(2)
    SignalGroup.SetAttValue("SigState", new_state_B)
    SignalGroup = SignalController.SGs.ItemByKey(3)
    SignalGroup.SetAttValue("SigState", new_state_C)
    SignalGroup = SignalController.SGs.ItemByKey(4)
    SignalGroup.SetAttValue("SigState", new_state_D)
    SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)

# RED CLEARANCE -> GREEN

# ALL RED -> A RECEIVES GREEN
if Stage == 2 and Keikajikan < RedClearance - 0.1 and SignalControllProgNo in [4, 7, 10]:
    Nanimoshinai = 0
elif Stage == 2 and Keikajikan >= RedClearance - 0.1 and SignalControllProgNo in [4, 7, 10]:
    SG_number = 1
    new_state_A = "GREEN"
    new_state_B = "RED"
    new_state_C = "RED"
    new_state_D = "RED"
    SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
    SignalGroup = SignalController.SGs.ItemByKey(1)
    SignalGroup.SetAttValue("SigState", new_state_A)
    SignalGroup = SignalController.SGs.ItemByKey(2)
    SignalGroup.SetAttValue("SigState", new_state_B)
    SignalGroup = SignalController.SGs.ItemByKey(3)
    SignalGroup.SetAttValue("SigState", new_state_C)
    SignalGroup = SignalController.SGs.ItemByKey(4)
    SignalGroup.SetAttValue("SigState", new_state_D)
    SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)

# ALL RED -> B RECEIVES GREEN
if Stage == 2 and Keikajikan < RedClearance - 0.1 and SignalControllProgNo in [1, 8, 11]:
    Nanimoshinai = 0
elif Stage == 2 and Keikajikan >= RedClearance - 0.1 and SignalControllProgNo in [1, 8, 11]:
    SG_number = 1
    new_state_A = "RED"
    new_state_B = "GREEN"
    new_state_C = "RED"
    new_state_D = "RED"
    SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
```

```
    SignalGroup = SignalController.SGs.ItemByKey(1)
    SignalGroup.SetAttValue("SigState", new_state_A)
    SignalGroup = SignalController.SGs.ItemByKey(2)
    SignalGroup.SetAttValue("SigState", new_state_B)
    SignalGroup = SignalController.SGs.ItemByKey(3)
    SignalGroup.SetAttValue("SigState", new_state_C)
    SignalGroup = SignalController.SGs.ItemByKey(4)
    SignalGroup.SetAttValue("SigState", new_state_D)
    SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)

# ALL RED -> C RECEIVES GREEN
if Stage == 2 and Keikajikan < RedClearance - 0.1 and SignalControllProgNo in [2, 5, 12]:
    Nanimoshinai = 0
elif Stage == 2 and Keikajikan >= RedClearance - 0.1 and SignalControllProgNo in [2, 5, 12]:
    SG_number = 1
    new_state_A = "RED"
    new_state_B = "RED"
    new_state_C = "GREEN"
    new_state_D = "RED"
    SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
    SignalGroup = SignalController.SGs.ItemByKey(1)
    SignalGroup.SetAttValue("SigState", new_state_A)
    SignalGroup = SignalController.SGs.ItemByKey(2)
    SignalGroup.SetAttValue("SigState", new_state_B)
    SignalGroup = SignalController.SGs.ItemByKey(3)
    SignalGroup.SetAttValue("SigState", new_state_C)
    SignalGroup = SignalController.SGs.ItemByKey(4)
    SignalGroup.SetAttValue("SigState", new_state_D)
    SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)

# ALL RED -> D RECEIVES GREEN
if Stage == 2 and Keikajikan < RedClearance - 0.1 and SignalControllProgNo in [3, 6, 9]:
    Nanimoshinai = 0
elif Stage == 2 and Keikajikan >= RedClearance - 0.1 and SignalControllProgNo in [3, 6, 9]:
    SG_number = 1
    new_state_A = "RED"
    new_state_B = "RED"
    new_state_C = "RED"
    new_state_D = "GREEN"
    SignalController = Vissim.Net.SignalControllers.ItemByKey(5)
    SignalGroup = SignalController.SGs.ItemByKey(1)
    SignalGroup.SetAttValue("SigState", new_state_A)
    SignalGroup = SignalController.SGs.ItemByKey(2)
    SignalGroup.SetAttValue("SigState", new_state_B)
    SignalGroup = SignalController.SGs.ItemByKey(3)
    SignalGroup.SetAttValue("SigState", new_state_C)
    SignalGroup = SignalController.SGs.ItemByKey(4)
    SignalGroup.SetAttValue("SigState", new_state_D)
    SetHenkojikoku = Vissim.Net.SignalControllers.ItemByKey(5).SetAttValue('Henkojikoku', Jikoku - 0.1)

return
```

APPENDIX A-2

DELAY BY CONDITION

Scenario	Penetration	Volume	Control	Class	*n*	Delay (seconds) *M*	*SD*	Min	25th	*Med*	75th	Max
1	20	400	BBPSC	1	643	50.6	49.7	0.0	9.1	39.3	75.7	303.3
1	20	400	BBPSC	2	9	41.6	26.6	0.2	43.3	44.4	49.2	87.1
1	20	400	BBPSC	3	25	45.2	39.5	0.3	14.8	36.4	61.3	136.8
1	20	400	BBPSC	4	11	19.6	28.7	0.0	0.5	3.0	29.1	90.1
1	20	400	BBPSC	5	14	35.6	29.6	1.2	14.4	22.5	60.5	100.8
1	20	400	BBPSC	6	21	26.1	47.3	0.0	0.4	3.5	30.1	165.9
1	20	400	BBPSC	7	19	24.3	26.8	0.0	1.3	23.4	38.4	87.1
1	20	400	BBPSC	8	14	23.5	22.1	0.1	8.5	13.6	38.9	77.5
1	20	400	BBPSC	9	21	23.2	23.9	0.0	6.7	13.6	35.0	88.6
1	20	400	BBPSC	10	10	15.4	19.8	0.0	3.5	8.3	17.1	64.9
1	20	400	BBPSC	11	17	33.1	35.4	2.5	8.4	23.5	34.3	135.6
1	20	400	BBPSC	12	5	0.2	0.1	0.0	0.2	0.3	0.3	0.4
2	20	400	BBPSC	1	613	53.2	52.9	0.0	5.0	38.9	83.9	247.5
2	20	400	BBPSC	2	6	62.4	57.1	8.1	17.8	46.8	97.0	150.9
2	20	400	BBPSC	3	12	35.3	41.4	1.9	2.6	15.8	70.8	121.3
2	20	400	BBPSC	4	17	38.0	50.3	0.0	4.4	17.0	47.2	178.4
2	20	400	BBPSC	5	19	37.6	40.8	0.0	2.9	31.0	54.4	137.7
2	20	400	BBPSC	6	10	29.3	28.9	0.6	5.7	17.4	53.1	74.7
2	20	400	BBPSC	7	12	29.6	33.2	0.0	5.6	15.7	46.7	107.9
2	20	400	BBPSC	8	26	22.3	33.1	0.1	0.7	4.4	38.6	113.2
2	20	400	BBPSC	9	10	17.2	30.6	0.0	1.1	3.8	9.6	92.1
2	20	400	BBPSC	10	21	22.7	24.4	0.4	1.9	23.2	30.5	83.0
2	20	400	BBPSC	11	17	18.5	22.4	0.3	1.3	6.0	31.4	79.3
2	20	400	BBPSC	12	6	4.2	6.3	0.0	0.2	1.1	5.5	16.0
3	20	400	BBPSC	1	614	48.5	45.9	0.0	7.4	39.7	72.8	245.9
3	20	400	BBPSC	2	15	34.1	29.8	0.4	10.1	32.0	50.6	89.6
3	20	400	BBPSC	3	15	25.0	29.5	0.3	2.9	18.5	33.0	102.9
3	20	400	BBPSC	4	18	22.7	31.1	0.3	1.7	6.8	43.9	105.2
3	20	400	BBPSC	5	13	19.2	26.0	0.4	0.9	6.0	26.4	65.8
3	20	400	BBPSC	6	14	11.7	14.9	0.0	0.3	3.2	19.9	50.2
3	20	400	BBPSC	7	19	10.6	14.2	0.0	2.0	4.8	13.1	58.9
3	20	400	BBPSC	8	13	14.5	14.9	0.3	1.8	6.7	28.1	38.1
3	20	400	BBPSC	9	15	9.9	15.4	0.0	0.6	1.7	15.1	47.2
3	20	400	BBPSC	10	19	11.4	15.1	0.3	1.3	2.9	20.3	57.5
3	20	400	BBPSC	11	12	16.1	25.2	1.1	2.0	3.7	13.3	69.8
3	20	400	BBPSC	12	4	0.1	0.1	0.0	0.0	0.1	0.2	0.2
4	20	600	BBPSC	1	794	64.2	57.2	0.0	13.5	54.4	100.0	258.8
4	20	600	BBPSC	2	10	54.3	42.4	0.3	26.4	54.3	63.0	155.2
4	20	600	BBPSC	3	30	40.5	42.8	0.2	3.5	27.7	62.5	151.4
4	20	600	BBPSC	4	16	37.0	30.9	0.3	8.9	29.9	60.8	90.4
4	20	600	BBPSC	5	20	35.9	40.3	0.0	4.1	23.7	36.6	126.9
4	20	600	BBPSC	6	24	51.9	49.2	0.4	11.6	36.2	75.8	158.7
4	20	600	BBPSC	7	23	43.2	45.3	0.0	8.2	39.0	56.1	178.5
4	20	600	BBPSC	8	16	29.3	34.6	0.6	3.7	21.4	49.7	132.5
4	20	600	BBPSC	9	25	38.0	43.5	0.0	11.7	22.1	43.0	141.6
4	20	600	BBPSC	10	14	18.4	25.5	2.3	4.1	11.9	18.1	99.7
4	20	600	BBPSC	11	21	29.3	45.5	0.0	4.7	17.5	21.6	174.8
4	20	600	BBPSC	12	8	0.7	0.8	0.0	0.3	0.3	0.8	2.4
5	20	600	BBPSC	1	776	65.7	61.2	0.0	14.4	51.1	97.9	273.9
5	20	600	BBPSC	2	8	67.2	25.1	38.0	48.2	66.3	82.2	109.4

5	20	600	BBPSC	3	19	55.5	52.2	0.4	6.4	58.0	76.2	185.0
5	20	600	BBPSC	4	23	49.2	41.8	0.0	14.7	41.4	65.1	140.9
5	20	600	BBPSC	5	22	50.2	53.8	1.4	11.0	28.5	64.8	189.7
5	20	600	BBPSC	6	12	56.5	35.3	6.3	40.8	48.6	57.0	132.6
5	20	600	BBPSC	7	20	35.1	54.1	0.2	4.4	14.7	39.5	221.9
5	20	600	BBPSC	8	32	32.9	37.0	0.4	4.0	18.3	53.0	130.7
5	20	600	BBPSC	9	21	20.0	31.2	0.0	1.9	7.1	22.8	109.3
5	20	600	BBPSC	10	26	36.1	36.7	0.8	7.5	24.1	51.9	131.7
5	20	600	BBPSC	11	18	25.6	27.8	0.3	3.6	19.2	33.6	106.7
5	20	600	BBPSC	12	8	1.1	2.3	0.0	0.0	0.3	0.6	6.8
6	20	600	BBPSC	1	767	62.0	53.9	0.0	17.0	50.8	94.4	226.8
6	20	600	BBPSC	2	18	56.7	46.7	0.0	13.3	52.1	89.9	140.2
6	20	600	BBPSC	3	21	43.5	43.1	0.3	9.8	27.9	67.3	150.5
6	20	600	BBPSC	4	20	40.3	41.9	0.2	2.0	40.6	67.0	144.1
6	20	600	BBPSC	5	15	51.2	42.6	0.3	27.1	37.4	71.5	134.3
6	20	600	BBPSC	6	16	34.9	30.0	0.3	10.2	34.0	54.0	108.8
6	20	600	BBPSC	7	22	30.9	32.7	0.0	6.5	22.6	36.7	120.7
6	20	600	BBPSC	8	16	20.9	22.5	0.4	3.7	14.6	30.0	79.1
6	20	600	BBPSC	9	17	11.8	11.6	0.0	1.3	5.9	23.6	34.4
6	20	600	BBPSC	10	23	19.1	20.5	0.0	2.1	12.2	31.2	67.7
6	20	600	BBPSC	11	18	24.6	24.8	1.0	8.0	13.6	30.5	76.0
6	20	600	BBPSC	12	5	0.2	0.2	0.0	0.0	0.2	0.3	0.5
7	20	800	BBPSC	1	962	83.8	72.8	0.0	22.7	68.6	124.4	363.6
7	20	800	BBPSC	2	12	70.7	59.3	0.3	31.2	41.0	124.2	179.3
7	20	800	BBPSC	3	35	76.6	59.4	0.3	32.0	60.8	108.9	200.7
7	20	800	BBPSC	4	19	63.8	55.0	5.3	19.9	51.7	84.7	185.9
7	20	800	BBPSC	5	21	60.1	51.3	2.2	18.5	46.4	97.2	176.0
7	20	800	BBPSC	6	27	62.0	50.4	1.5	18.7	52.5	105.0	184.3
7	20	800	BBPSC	7	27	63.5	57.1	0.2	20.1	47.3	87.3	187.9
7	20	800	BBPSC	8	20	51.2	47.3	1.2	21.2	28.0	84.0	149.8
7	20	800	BBPSC	9	29	57.4	55.5	2.2	14.3	36.6	80.9	179.9
7	20	800	BBPSC	10	26	55.3	50.6	0.0	20.1	45.6	59.7	171.2
7	20	800	BBPSC	11	24	57.8	42.3	0.6	28.9	59.2	78.8	165.9
7	20	800	BBPSC	12	11	1.9	4.1	0.0	0.1	0.2	1.6	13.6
8	20	800	BBPSC	1	916	75.1	68.2	0.0	21.2	58.0	111.9	387.3
8	20	800	BBPSC	2	12	67.0	63.6	1.8	17.0	34.1	127.0	166.6
8	20	800	BBPSC	3	23	58.4	54.7	2.4	8.9	64.2	85.6	231.0
8	20	800	BBPSC	4	26	67.7	53.3	2.8	23.5	55.5	101.4	207.4
8	20	800	BBPSC	5	23	79.7	78.6	2.0	22.8	54.0	103.0	259.7
8	20	800	BBPSC	6	16	52.7	39.7	1.6	22.2	53.7	75.4	127.9
8	20	800	BBPSC	7	26	47.7	41.9	4.7	19.3	36.2	68.5	176.3
8	20	800	BBPSC	8	34	61.5	58.2	1.5	13.9	44.3	88.5	230.0
8	20	800	BBPSC	9	25	36.2	35.3	0.0	6.5	29.3	47.8	139.9
8	20	800	BBPSC	10	32	49.6	50.1	0.4	11.3	31.0	76.4	172.0
8	20	800	BBPSC	11	20	41.2	44.7	1.4	10.9	24.2	54.3	152.5
8	20	800	BBPSC	12	9	0.9	1.3	0.0	0.0	0.5	0.6	3.4
9	20	800	BBPSC	1	898	74.8	70.4	0.0	20.5	61.0	108.3	443.2
9	20	800	BBPSC	2	20	77.5	56.7	0.0	32.8	79.8	107.9	173.6
9	20	800	BBPSC	3	26	57.8	52.5	0.2	14.9	32.7	102.6	176.5
9	20	800	BBPSC	4	23	54.2	49.9	0.3	10.7	33.2	99.7	166.4
9	20	800	BBPSC	5	17	45.2	52.3	0.0	4.7	21.0	82.8	158.7
9	20	800	BBPSC	6	19	40.0	36.4	2.1	10.5	23.9	71.7	103.6
9	20	800	BBPSC	7	26	35.0	31.5	0.5	11.7	25.9	45.9	132.1
9	20	800	BBPSC	8	19	27.5	22.2	0.0	5.7	31.1	42.9	73.6
9	20	800	BBPSC	9	25	32.6	24.1	0.4	11.1	28.8	51.3	87.4
9	20	800	BBPSC	10	24	18.1	19.9	0.0	5.7	11.7	22.5	81.3
9	20	800	BBPSC	11	25	31.9	24.7	1.1	13.7	23.0	49.3	78.5
9	20	800	BBPSC	12	6	2.5	4.3	0.0	0.0	0.9	2.0	11.0
10	20	1000	BBPSC	1	1116	106.8	85.5	0.0	40.2	94.0	155.7	453.1
10	20	1000	BBPSC	2	14	86.9	82.8	13.8	23.1	60.0	127.5	308.0
10	20	1000	BBPSC	3	39	104.3	71.3	0.4	40.5	107.8	165.4	257.7

10	20	1000	BBPSC	4	22	77.9	62.9	2.0	33.8	60.5	101.6	243.8
10	20	1000	BBPSC	5	26	108.6	70.5	17.4	58.4	96.1	146.6	294.5
10	20	1000	BBPSC	6	36	100.6	76.1	1.8	30.0	95.5	145.8	265.1
10	20	1000	BBPSC	7	31	95.7	81.0	0.8	33.4	72.0	140.5	358.5
10	20	1000	BBPSC	8	24	81.8	46.5	0.0	42.3	84.3	118.1	170.7
10	20	1000	BBPSC	9	35	107.9	78.0	5.4	40.1	94.1	166.2	291.0
10	20	1000	BBPSC	10	31	75.8	52.7	5.9	43.0	66.1	103.0	184.1
10	20	1000	BBPSC	11	28	87.0	58.8	5.9	47.0	76.8	108.6	215.1
10	20	1000	BBPSC	12	12	6.7	20.1	0.0	0.2	0.4	1.3	70.5
11	20	1000	BBPSC	1	1077	86.0	73.1	0.0	28.5	75.0	125.6	456.2
11	20	1000	BBPSC	2	13	84.1	62.7	11.2	32.3	87.5	107.0	195.0
11	20	1000	BBPSC	3	28	75.7	57.1	0.6	28.6	67.2	102.7	249.6
11	20	1000	BBPSC	4	28	85.0	67.6	7.2	27.6	69.7	129.1	226.5
11	20	1000	BBPSC	5	27	76.6	56.1	2.9	39.3	54.3	110.1	213.7
11	20	1000	BBPSC	6	21	66.8	48.4	1.6	29.3	66.3	78.4	169.0
11	20	1000	BBPSC	7	31	68.0	49.4	0.8	31.8	56.1	103.0	188.0
11	20	1000	BBPSC	8	37	73.3	53.7	4.8	26.6	61.9	106.7	207.4
11	20	1000	BBPSC	9	28	53.6	48.2	3.7	13.9	35.9	83.6	185.4
11	20	1000	BBPSC	10	37	72.5	52.6	0.4	28.9	65.7	100.7	210.0
11	20	1000	BBPSC	11	24	47.7	34.1	1.3	24.3	39.0	75.5	121.8
11	20	1000	BBPSC	12	13	4.7	12.4	0.0	0.3	0.5	0.9	45.0
12	20	1000	BBPSC	1	1060	87.3	71.0	0.0	33.3	71.4	130.0	443.8
12	20	1000	BBPSC	2	23	78.9	52.1	0.7	35.3	66.5	114.7	183.3
12	20	1000	BBPSC	3	30	78.5	62.6	2.5	36.9	63.2	123.5	282.6
12	20	1000	BBPSC	4	24	77.7	51.2	0.1	42.8	72.5	103.3	194.2
12	20	1000	BBPSC	5	18	38.7	36.4	3.7	15.8	26.5	44.7	131.7
12	20	1000	BBPSC	6	22	45.0	36.1	0.0	17.7	40.7	71.7	144.7
12	20	1000	BBPSC	7	28	52.8	39.4	2.4	24.5	43.9	78.2	162.7
12	20	1000	BBPSC	8	24	41.9	34.7	1.0	10.9	40.1	64.6	139.5
12	20	1000	BBPSC	9	31	43.6	45.4	0.0	4.2	35.9	68.2	187.9
12	20	1000	BBPSC	10	26	46.9	31.3	4.4	23.6	44.7	63.3	129.1
12	20	1000	BBPSC	11	30	40.9	36.2	1.1	14.4	24.0	56.8	143.1
12	20	1000	BBPSC	12	6	1.8	3.6	0.0	0.1	0.2	0.7	9.2
13	20	1200	BBPSC	1	1198	175.1	140.0	0.0	76.2	145.9	231.7	760.4
13	20	1200	BBPSC	2	15	179.0	137.0	16.5	66.3	155.5	262.0	515.2
13	20	1200	BBPSC	3	41	166.8	131.0	1.5	92.1	149.0	215.6	514.3
13	20	1200	BBPSC	4	25	124.7	104.9	4.7	65.8	89.4	173.3	476.4
13	20	1200	BBPSC	5	25	150.9	110.2	16.6	80.7	135.2	207.0	524.9
13	20	1200	BBPSC	6	38	163.1	123.5	7.9	54.4	153.3	232.6	477.6
13	20	1200	BBPSC	7	36	122.0	96.9	1.9	36.0	105.9	176.4	380.4
13	20	1200	BBPSC	8	28	144.9	117.5	8.6	59.6	112.7	183.3	482.8
13	20	1200	BBPSC	9	37	157.0	136.6	8.5	49.3	114.4	210.3	547.3
13	20	1200	BBPSC	10	33	129.0	85.2	3.0	53.2	125.5	162.1	331.0
13	20	1200	BBPSC	11	32	142.1	88.5	6.3	70.4	135.7	171.5	349.0
13	20	1200	BBPSC	12	14	52.3	66.0	0.2	0.3	28.5	88.7	208.9
14	20	1200	BBPSC	1	1146	243.3	197.6	0.0	109.1	202.4	315.0	1073.8
14	20	1200	BBPSC	2	15	241.8	193.0	4.4	104.1	198.9	328.7	630.7
14	20	1200	BBPSC	3	33	166.9	181.4	8.1	66.2	103.7	240.7	984.1
14	20	1200	BBPSC	4	30	227.5	231.5	16.4	103.5	137.7	212.4	908.6
14	20	1200	BBPSC	5	31	231.2	185.8	4.9	113.2	202.1	253.6	738.2
14	20	1200	BBPSC	6	25	182.1	142.8	15.8	89.4	164.9	202.2	655.2
14	20	1200	BBPSC	7	32	196.4	126.6	30.7	99.4	179.8	251.3	550.3
14	20	1200	BBPSC	8	40	179.5	122.4	12.0	98.5	180.1	219.7	616.6
14	20	1200	BBPSC	9	31	208.5	99.1	30.0	138.0	194.7	236.7	423.0
14	20	1200	BBPSC	10	41	219.4	151.5	24.2	105.2	193.5	305.2	697.1
14	20	1200	BBPSC	11	31	169.6	143.3	15.2	51.0	157.3	210.6	534.3
14	20	1200	BBPSC	12	19	100.2	81.6	0.0	16.6	119.5	160.4	266.2
15	20	1200	BBPSC	1	1197	127.6	104.0	0.0	50.8	109.5	172.6	677.8
15	20	1200	BBPSC	2	25	117.4	77.7	4.2	56.9	110.9	156.7	333.9
15	20	1200	BBPSC	3	35	113.4	77.9	0.8	51.8	109.4	155.4	351.5
15	20	1200	BBPSC	4	25	114.1	76.8	8.6	69.8	89.0	165.1	272.3

15	20	1200	BBPSC	5	19	76.0	60.6	4.5	31.5	59.9	118.0	196.2
15	20	1200	BBPSC	6	25	95.1	65.3	2.1	37.2	103.5	135.7	234.0
15	20	1200	BBPSC	7	30	80.6	57.1	3.0	38.2	71.1	116.4	278.0
15	20	1200	BBPSC	8	27	85.5	62.9	1.7	33.2	76.4	124.1	220.0
15	20	1200	BBPSC	9	34	85.1	61.8	4.4	35.0	64.2	130.1	210.6
15	20	1200	BBPSC	10	28	86.0	62.4	5.6	28.1	87.6	119.6	236.1
15	20	1200	BBPSC	11	32	82.9	57.7	1.1	29.7	79.5	122.7	261.2
15	20	1200	BBPSC	12	7	2.2	3.3	0.0	0.2	0.6	2.9	8.5
16	20	1400	BBPSC	1	1168	339.3	287.3	0.0	172.0	274.5	392.3	1822.7
16	20	1400	BBPSC	2	17	386.1	301.6	49.0	232.1	311.4	422.4	1263.4
16	20	1400	BBPSC	3	41	329.6	301.9	26.8	133.8	267.0	424.0	1477.3
16	20	1400	BBPSC	4	22	261.8	169.5	5.9	147.3	222.4	331.0	804.6
16	20	1400	BBPSC	5	29	354.5	288.2	73.8	181.1	284.0	419.3	1345.7
16	20	1400	BBPSC	6	37	358.1	303.5	41.5	188.4	266.1	344.8	1520.4
16	20	1400	BBPSC	7	35	240.0	218.7	8.5	121.2	224.2	304.4	1318.9
16	20	1400	BBPSC	8	27	259.5	120.2	57.2	178.8	276.8	313.2	574.9
16	20	1400	BBPSC	9	32	266.6	182.4	26.3	145.5	237.8	363.4	804.0
16	20	1400	BBPSC	10	36	310.1	222.5	38.7	184.2	259.3	351.0	1174.0
16	20	1400	BBPSC	11	33	242.9	143.1	1.8	128.6	223.5	336.5	539.3
16	20	1400	BBPSC	12	14	230.1	160.0	0.2	152.7	261.8	315.9	540.3
17	20	1400	BBPSC	1	1168	384.2	343.3	0.0	172.2	284.8	483.0	1750.0
17	20	1400	BBPSC	2	13	372.1	357.8	37.1	149.7	269.5	463.3	1366.9
17	20	1400	BBPSC	3	31	242.5	186.6	6.5	117.4	204.1	352.1	834.5
17	20	1400	BBPSC	4	30	378.2	377.6	20.4	138.7	234.5	411.6	1450.5
17	20	1400	BBPSC	5	31	343.5	280.6	11.1	195.7	270.4	403.0	1329.4
17	20	1400	BBPSC	6	24	283.6	315.3	39.7	75.4	207.9	314.8	1477.9
17	20	1400	BBPSC	7	33	334.2	327.2	17.0	102.5	191.0	459.8	1251.0
17	20	1400	BBPSC	8	37	297.0	279.9	12.5	111.8	219.4	297.7	1166.5
17	20	1400	BBPSC	9	31	356.2	249.0	54.7	230.0	267.0	399.8	1047.4
17	20	1400	BBPSC	10	39	361.8	278.3	34.7	196.0	283.6	483.0	1224.3
17	20	1400	BBPSC	11	30	308.7	225.1	29.6	139.0	266.8	392.5	944.3
17	20	1400	BBPSC	12	19	163.5	121.4	0.0	77.7	146.2	226.6	407.4
18	20	1400	BBPSC	1	1235	289.9	206.6	0.1	152.6	261.1	383.1	1347.9
18	20	1400	BBPSC	2	25	258.5	172.3	52.6	148.0	208.9	369.5	642.0
18	20	1400	BBPSC	3	33	262.8	118.3	85.3	182.3	260.2	340.3	567.6
18	20	1400	BBPSC	4	25	249.3	148.2	12.5	158.7	252.2	287.8	604.3
18	20	1400	BBPSC	5	20	260.5	159.2	27.7	156.2	217.5	385.1	513.1
18	20	1400	BBPSC	6	26	252.0	176.2	3.6	131.7	224.3	351.4	663.7
18	20	1400	BBPSC	7	30	198.1	148.1	32.9	89.3	163.2	253.0	665.7
18	20	1400	BBPSC	8	28	235.0	173.7	16.2	106.4	219.0	315.3	703.2
18	20	1400	BBPSC	9	36	267.1	145.1	37.1	138.0	258.0	390.8	532.3
18	20	1400	BBPSC	10	28	176.6	136.5	14.5	49.8	164.0	254.2	502.9
18	20	1400	BBPSC	11	31	243.3	142.0	22.2	128.7	246.5	322.1	530.1
18	20	1400	BBPSC	12	7	114.1	129.7	0.2	3.0	67.8	208.5	307.9
19	20	1600	BBPSC	1	1188	516.6	509.0	0.0	222.7	384.4	554.0	2611.7
19	20	1600	BBPSC	2	15	456.9	464.1	55.5	176.2	351.0	546.3	1991.7
19	20	1600	BBPSC	3	41	394.6	346.9	14.9	214.9	349.0	465.7	2090.1
19	20	1600	BBPSC	4	22	436.2	441.1	9.1	183.2	348.8	414.3	1920.3
19	20	1600	BBPSC	5	31	516.8	501.2	92.1	225.7	373.2	525.2	2199.6
19	20	1600	BBPSC	6	35	443.8	400.4	102.4	188.9	354.3	446.2	1758.0
19	20	1600	BBPSC	7	33	301.1	157.9	28.2	149.1	311.9	395.4	622.6
19	20	1600	BBPSC	8	28	555.2	538.0	91.0	281.4	413.2	528.8	2180.7
19	20	1600	BBPSC	9	35	437.3	355.5	29.6	210.6	423.2	506.6	1960.5
19	20	1600	BBPSC	10	34	491.2	383.3	63.7	306.9	414.5	526.9	1976.7
19	20	1600	BBPSC	11	36	372.9	316.7	25.8	170.2	334.6	521.2	1764.1
19	20	1600	BBPSC	12	14	300.4	181.4	0.2	153.5	349.8	426.5	574.7
20	20	1600	BBPSC	1	1203	443.5	374.2	0.0	188.8	371.1	532.2	1987.6
20	20	1600	BBPSC	2	17	492.6	394.3	102.8	189.9	355.1	629.2	1437.1
20	20	1600	BBPSC	3	36	326.4	322.6	12.3	131.9	269.7	418.0	1780.8
20	20	1600	BBPSC	4	28	384.2	427.6	54.1	168.5	233.4	388.0	1930.2
20	20	1600	BBPSC	5	33	437.7	431.6	7.8	204.6	309.0	441.7	1738.6

20	20	1600	BBPSC	6	25	460.3	488.0	26.2	156.3	374.1	479.7	1953.8
20	20	1600	BBPSC	7	32	420.2	412.3	16.1	149.8	295.6	474.3	1942.0
20	20	1600	BBPSC	8	41	414.0	383.3	16.6	181.9	323.0	442.9	1893.2
20	20	1600	BBPSC	9	34	452.1	327.3	105.0	252.5	368.2	505.5	1619.6
20	20	1600	BBPSC	10	39	432.2	364.7	19.0	195.6	379.5	492.1	1987.9
20	20	1600	BBPSC	11	28	354.3	307.6	24.1	158.9	262.4	519.2	1496.6
20	20	1600	BBPSC	12	19	252.5	195.9	0.0	71.9	273.0	391.7	554.9
21	20	1600	BBPSC	1	1262	390.0	266.0	0.1	198.4	349.2	550.2	1780.9
21	20	1600	BBPSC	2	28	364.6	251.2	40.7	143.6	297.6	575.2	859.9
21	20	1600	BBPSC	3	35	338.6	182.3	67.7	175.0	306.2	478.8	670.5
21	20	1600	BBPSC	4	26	365.7	223.5	13.8	211.6	353.4	515.5	944.4
21	20	1600	BBPSC	5	21	420.9	323.7	53.9	183.0	377.1	577.2	1546.5
21	20	1600	BBPSC	6	27	331.5	237.7	9.6	147.0	292.5	493.3	1007.2
21	20	1600	BBPSC	7	34	346.7	230.9	35.7	172.5	295.5	444.8	1006.6
21	20	1600	BBPSC	8	31	359.2	225.8	11.2	175.8	323.7	454.9	821.6
21	20	1600	BBPSC	9	36	383.2	276.6	22.2	176.4	361.7	543.7	1513.3
21	20	1600	BBPSC	10	30	316.1	187.1	20.7	167.2	352.5	410.3	750.9
21	20	1600	BBPSC	11	30	326.8	163.9	19.0	219.0	327.5	384.7	676.6
21	20	1600	BBPSC	12	7	155.2	168.2	0.2	39.0	98.6	250.9	407.8
22	40	400	BBPSC	1	476	49.3	47.5	0.0	9.9	39.6	73.6	271.3
22	40	400	BBPSC	2	28	35.3	27.0	0.0	9.8	36.7	58.3	90.4
22	40	400	BBPSC	3	31	30.5	27.0	0.0	4.8	27.1	49.6	89.4
22	40	400	BBPSC	4	37	40.7	38.8	0.2	11.5	36.8	58.3	182.7
22	40	400	BBPSC	5	38	26.0	26.5	0.0	2.4	18.8	42.4	97.9
22	40	400	BBPSC	6	34	28.4	23.1	0.0	4.3	30.4	40.7	87.1
22	40	400	BBPSC	7	36	31.8	28.6	0.0	2.9	31.6	45.8	114.3
22	40	400	BBPSC	8	28	19.5	23.9	0.0	0.8	6.5	35.4	73.8
22	40	400	BBPSC	9	37	36.4	45.9	0.1	2.1	28.6	49.7	165.9
22	40	400	BBPSC	10	36	25.5	25.0	0.0	9.0	16.5	37.3	100.4
22	40	400	BBPSC	11	26	28.0	33.4	0.3	8.1	14.4	36.3	137.7
22	40	400	BBPSC	12	5	0.2	0.1	0.0	0.2	0.3	0.3	0.4
23	40	400	BBPSC	1	456	46.7	49.0	0.0	3.8	33.0	74.1	263.5
23	40	400	BBPSC	2	24	30.9	48.2	0.0	0.8	6.8	43.1	166.9
23	40	400	BBPSC	3	27	45.1	49.2	0.0	8.5	20.9	69.8	171.7
23	40	400	BBPSC	4	41	42.9	46.6	0.0	7.2	24.0	57.6	160.9
23	40	400	BBPSC	5	29	23.7	29.3	0.0	1.2	11.6	34.1	101.7
23	40	400	BBPSC	6	32	26.3	26.5	0.0	1.1	21.7	37.4	90.8
23	40	400	BBPSC	7	20	24.6	34.9	0.0	1.9	13.7	23.8	118.9
23	40	400	BBPSC	8	35	27.8	36.5	0.0	0.9	13.1	39.7	146.4
23	40	400	BBPSC	9	22	22.7	25.1	0.0	2.3	13.9	34.6	75.8
23	40	400	BBPSC	10	36	23.1	26.9	0.0	1.4	10.8	36.8	113.2
23	40	400	BBPSC	11	38	23.4	24.6	0.3	1.9	16.8	34.9	84.7
23	40	400	BBPSC	12	6	4.8	7.7	0.0	0.2	1.1	5.5	19.6
24	40	400	BBPSC	1	441	45.7	48.7	0.0	4.8	32.0	66.7	292.1
24	40	400	BBPSC	2	26	50.5	35.8	1.7	22.8	45.4	69.7	129.8
24	40	400	BBPSC	3	39	39.8	36.9	0.0	3.6	39.8	67.1	118.0
24	40	400	BBPSC	4	35	39.3	31.0	0.3	13.3	30.6	56.5	110.2
24	40	400	BBPSC	5	46	31.9	30.9	0.0	2.6	25.9	51.4	114.5
24	40	400	BBPSC	6	27	21.2	22.7	0.0	3.9	9.1	35.2	82.8
24	40	400	BBPSC	7	30	13.0	20.8	0.0	0.4	4.4	13.0	89.3
24	40	400	BBPSC	8	32	18.9	22.3	0.0	0.9	9.2	29.2	81.2
24	40	400	BBPSC	9	32	17.8	16.6	0.0	2.0	13.7	32.1	56.0
24	40	400	BBPSC	10	29	15.4	15.7	0.0	1.7	10.8	26.6	50.4
24	40	400	BBPSC	11	30	17.5	22.7	0.0	1.5	5.7	27.7	76.1
24	40	400	BBPSC	12	4	0.1	0.1	0.0	0.0	0.1	0.2	0.2
25	40	600	BBPSC	1	601	64.9	57.8	0.0	17.4	51.4	95.0	249.4
25	40	600	BBPSC	2	33	59.4	44.5	0.0	13.9	57.9	98.2	163.5
25	40	600	BBPSC	3	38	45.7	41.5	0.0	3.2	38.0	79.9	150.5
25	40	600	BBPSC	4	43	50.0	47.1	0.0	7.5	38.9	78.6	161.7
25	40	600	BBPSC	5	40	47.3	46.2	0.0	15.9	41.0	57.5	204.0
25	40	600	BBPSC	6	42	35.8	31.9	0.3	14.3	24.7	55.8	143.9

25	40	600	BBPSC	7	42	34.2	31.7	0.0	4.9	27.5	50.5	131.4
25	40	600	BBPSC	8	38	39.3	33.9	0.0	7.7	37.4	55.0	124.0
25	40	600	BBPSC	9	45	40.9	41.2	0.0	5.8	30.5	63.5	138.6
25	40	600	BBPSC	10	41	44.7	46.7	1.4	9.8	33.6	52.1	161.6
25	40	600	BBPSC	11	34	37.3	34.7	0.9	17.3	25.9	42.7	154.8
25	40	600	BBPSC	12	8	0.7	0.8	0.0	0.3	0.3	0.8	2.4
26	40	600	BBPSC	1	589	57.7	54.7	0.0	13.6	43.4	87.3	301.9
26	40	600	BBPSC	2	26	61.8	48.8	0.5	24.8	55.2	106.8	147.9
26	40	600	BBPSC	3	29	47.0	42.8	0.2	16.2	38.6	80.0	141.2
26	40	600	BBPSC	4	52	58.6	56.8	0.0	21.5	40.3	79.2	227.7
26	40	600	BBPSC	5	35	50.1	43.8	0.4	22.2	37.9	67.7	222.1
26	40	600	BBPSC	6	43	45.6	36.1	0.0	15.3	40.2	64.2	124.3
26	40	600	BBPSC	7	29	47.1	43.3	1.5	13.4	37.6	67.2	185.0
26	40	600	BBPSC	8	44	38.5	36.6	0.0	9.9	33.8	46.9	132.9
26	40	600	BBPSC	9	32	39.9	36.3	0.5	11.9	29.3	56.5	130.6
26	40	600	BBPSC	10	53	32.2	34.7	0.0	3.7	22.3	44.9	130.8
26	40	600	BBPSC	11	44	36.6	37.0	0.6	9.4	26.3	46.1	150.1
26	40	600	BBPSC	12	8	1.1	2.3	0.0	0.0	0.3	0.6	6.8
27	40	600	BBPSC	1	552	46.4	42.2	0.0	10.6	39.2	67.1	240.7
27	40	600	BBPSC	2	36	58.8	61.2	0.4	14.7	42.1	85.9	262.6
27	40	600	BBPSC	3	44	44.8	35.9	0.3	10.0	41.2	76.1	109.5
27	40	600	BBPSC	4	39	39.9	33.8	0.0	9.4	34.8	59.8	144.2
27	40	600	BBPSC	5	58	46.4	39.7	0.0	14.0	34.2	67.7	168.0
27	40	600	BBPSC	6	37	32.3	25.8	0.3	6.9	39.3	48.0	91.0
27	40	600	BBPSC	7	38	38.3	38.5	0.0	5.8	25.8	59.7	134.9
27	40	600	BBPSC	8	37	37.9	38.3	0.3	13.0	33.9	47.2	213.2
27	40	600	BBPSC	9	37	27.5	20.8	1.7	7.7	26.9	40.9	70.5
27	40	600	BBPSC	10	34	17.2	18.5	0.4	3.3	11.1	23.8	72.3
27	40	600	BBPSC	11	41	26.0	23.2	0.3	7.5	19.0	39.1	91.9
27	40	600	BBPSC	12	5	0.2	0.2	0.0	0.0	0.2	0.3	0.5
28	40	800	BBPSC	1	727	77.7	66.4	0.0	21.3	64.3	120.9	343.6
28	40	800	BBPSC	2	40	82.8	58.1	0.0	37.5	73.6	140.9	179.0
28	40	800	BBPSC	3	44	67.8	68.7	0.4	6.0	46.5	108.9	232.5
28	40	800	BBPSC	4	49	62.5	50.6	0.0	20.4	47.4	101.5	171.6
28	40	800	BBPSC	5	45	74.9	64.9	0.0	8.6	67.7	115.5	207.6
28	40	800	BBPSC	6	48	55.5	50.8	0.3	11.4	43.8	84.0	174.6
28	40	800	BBPSC	7	49	69.6	59.9	0.2	19.9	54.9	103.6	224.6
28	40	800	BBPSC	8	43	62.8	45.1	0.0	27.0	47.0	91.6	190.6
28	40	800	BBPSC	9	53	66.6	62.6	0.6	14.5	40.9	112.1	234.5
28	40	800	BBPSC	10	49	63.1	49.1	0.2	22.9	51.9	99.4	181.7
28	40	800	BBPSC	11	49	62.6	48.9	2.9	26.2	54.1	78.9	201.0
28	40	800	BBPSC	12	11	1.2	2.0	0.0	0.1	0.2	1.5	5.9
29	40	800	BBPSC	1	693	70.7	60.0	0.0	21.2	57.0	108.7	297.7
29	40	800	BBPSC	2	33	81.7	52.7	0.4	34.2	86.9	111.4	233.2
29	40	800	BBPSC	3	38	68.1	56.7	0.0	25.7	64.2	87.2	232.6
29	40	800	BBPSC	4	63	72.6	56.4	1.4	22.8	58.7	114.0	219.5
29	40	800	BBPSC	5	41	48.7	56.9	0.5	6.6	30.0	50.6	194.4
29	40	800	BBPSC	6	46	69.1	55.0	0.4	21.6	56.7	98.2	202.8
29	40	800	BBPSC	7	37	54.6	49.0	0.3	9.3	44.8	81.6	193.4
29	40	800	BBPSC	8	49	60.2	60.7	1.4	16.1	41.1	77.8	229.3
29	40	800	BBPSC	9	43	50.8	45.1	2.0	21.1	35.1	66.7	196.3
29	40	800	BBPSC	10	59	58.4	53.1	0.0	14.0	34.7	92.9	210.0
29	40	800	BBPSC	11	52	53.3	49.9	0.4	15.4	42.9	75.8	232.0
29	40	800	BBPSC	12	9	0.9	1.3	0.0	0.0	0.5	0.6	3.4
30	40	800	BBPSC	1	653	53.1	49.2	0.0	13.4	43.4	78.4	261.4
30	40	800	BBPSC	2	42	61.0	51.9	0.7	21.7	56.8	81.7	228.6
30	40	800	BBPSC	3	52	55.5	50.4	0.0	22.0	45.2	78.8	233.5
30	40	800	BBPSC	4	48	47.0	33.8	0.9	15.6	47.0	69.1	127.2
30	40	800	BBPSC	5	66	54.5	46.8	0.0	19.3	45.2	73.2	190.7
30	40	800	BBPSC	6	46	51.6	32.8	0.0	28.2	49.4	70.8	144.5
30	40	800	BBPSC	7	47	47.3	39.1	0.3	12.8	39.3	74.0	145.2

30	40	800	BBPSC	8	41	37.1	32.5	0.4	9.7	36.3	59.9	130.1
30	40	800	BBPSC	9	44	31.0	24.9	0.5	7.3	26.5	51.8	85.9
30	40	800	BBPSC	10	44	34.1	29.9	0.5	8.1	27.8	42.5	96.2
30	40	800	BBPSC	11	49	30.2	22.9	1.0	10.9	23.8	46.7	82.1
30	40	800	BBPSC	12	6	2.5	4.3	0.0	0.0	0.9	2.0	11.0
31	40	1000	BBPSC	1	851	109.9	82.3	0.0	45.8	101.3	153.1	428.1
31	40	1000	BBPSC	2	44	108.8	97.9	0.5	43.3	94.4	133.6	460.7
31	40	1000	BBPSC	3	49	105.4	70.0	0.8	45.0	111.6	168.0	244.5
31	40	1000	BBPSC	4	57	90.5	70.0	2.3	28.6	79.8	130.4	354.3
31	40	1000	BBPSC	5	53	117.2	80.4	2.4	65.2	108.6	167.4	387.9
31	40	1000	BBPSC	6	54	79.5	64.9	0.3	33.1	61.2	110.7	239.1
31	40	1000	BBPSC	7	55	96.8	66.2	5.4	53.0	89.3	134.9	264.3
31	40	1000	BBPSC	8	51	99.8	76.5	1.7	38.8	90.1	132.0	341.9
31	40	1000	BBPSC	9	64	97.8	69.6	2.3	37.2	91.2	137.6	258.7
31	40	1000	BBPSC	10	62	94.5	69.3	0.0	31.9	84.0	135.8	364.3
31	40	1000	BBPSC	11	57	92.7	62.3	1.0	48.1	79.9	125.7	257.1
31	40	1000	BBPSC	12	12	3.4	8.6	0.0	0.2	0.4	1.8	30.4
32	40	1000	BBPSC	1	804	77.9	61.2	0.0	28.7	67.9	114.6	297.6
32	40	1000	BBPSC	2	43	81.8	69.7	3.6	28.2	77.4	106.2	274.8
32	40	1000	BBPSC	3	46	79.2	56.7	3.1	40.5	70.5	106.8	232.6
32	40	1000	BBPSC	4	72	81.8	58.4	0.3	28.8	80.5	118.1	246.6
32	40	1000	BBPSC	5	53	70.7	49.6	0.5	27.6	66.2	99.5	188.5
32	40	1000	BBPSC	6	58	73.4	61.5	0.4	31.7	57.1	102.6	227.5
32	40	1000	BBPSC	7	42	68.0	51.3	0.5	28.7	69.9	93.1	229.6
32	40	1000	BBPSC	8	54	70.6	49.0	1.2	39.2	63.2	100.5	234.0
32	40	1000	BBPSC	9	53	58.9	42.9	0.5	26.1	47.4	85.2	170.0
32	40	1000	BBPSC	10	65	68.2	48.6	0.0	24.9	61.6	104.9	188.6
32	40	1000	BBPSC	11	61	70.8	45.6	0.6	36.0	63.4	102.6	172.4
32	40	1000	BBPSC	12	13	4.6	12.2	0.0	0.0	0.5	0.9	44.0
33	40	1000	BBPSC	1	779	75.2	63.3	0.0	26.3	60.7	107.7	328.1
33	40	1000	BBPSC	2	45	77.6	65.4	0.8	24.2	63.2	105.7	260.2
33	40	1000	BBPSC	3	59	71.6	56.6	0.3	34.6	50.0	98.2	231.9
33	40	1000	BBPSC	4	58	73.0	54.7	0.0	30.7	66.5	123.0	215.0
33	40	1000	BBPSC	5	72	73.0	51.5	0.5	33.4	68.8	108.4	229.9
33	40	1000	BBPSC	6	54	65.1	47.9	1.2	26.3	60.7	86.0	227.8
33	40	1000	BBPSC	7	54	67.5	43.3	2.0	33.1	67.6	95.0	155.7
33	40	1000	BBPSC	8	45	60.0	44.1	0.4	28.7	50.0	83.8	192.2
33	40	1000	BBPSC	9	49	49.9	35.3	1.6	23.8	44.1	77.6	152.7
33	40	1000	BBPSC	10	52	45.4	37.7	0.3	9.8	38.6	68.2	165.3
33	40	1000	BBPSC	11	54	44.7	34.3	0.7	17.9	40.1	62.8	133.1
33	40	1000	BBPSC	12	6	1.8	3.6	0.0	0.2	0.2	0.7	9.2
34	40	1200	BBPSC	1	907	193.1	134.6	0.0	98.8	167.1	255.2	698.4
34	40	1200	BBPSC	2	44	166.8	134.5	3.1	56.3	145.6	231.4	607.5
34	40	1200	BBPSC	3	57	193.4	149.9	2.9	83.3	177.0	243.1	639.5
34	40	1200	BBPSC	4	62	175.6	132.5	5.0	75.3	147.5	268.8	543.3
34	40	1200	BBPSC	5	59	199.0	130.5	0.3	100.0	170.8	272.5	539.1
34	40	1200	BBPSC	6	60	146.8	126.2	2.3	43.9	117.4	188.7	568.3
34	40	1200	BBPSC	7	59	172.0	108.6	2.1	92.4	153.7	229.4	478.6
34	40	1200	BBPSC	8	54	168.9	111.0	4.7	94.4	161.1	226.3	588.5
34	40	1200	BBPSC	9	69	170.8	136.3	18.8	85.0	135.4	202.7	579.2
34	40	1200	BBPSC	10	65	171.9	118.7	7.2	76.7	154.7	225.2	508.2
34	40	1200	BBPSC	11	62	158.5	111.3	3.3	78.8	149.4	220.9	631.9
34	40	1200	BBPSC	12	13	49.7	53.1	0.3	7.2	36.1	66.8	152.2
35	40	1200	BBPSC	1	876	254.1	209.7	0.0	121.4	207.0	308.5	1260.1
35	40	1200	BBPSC	2	45	276.3	252.9	4.7	85.2	207.7	344.3	1062.2
35	40	1200	BBPSC	3	48	242.7	233.0	26.9	117.9	194.1	273.1	1287.5
35	40	1200	BBPSC	4	76	191.9	154.7	1.7	102.5	163.5	236.9	684.8
35	40	1200	BBPSC	5	56	227.5	169.3	0.4	120.4	202.5	295.5	1061.3
35	40	1200	BBPSC	6	64	226.3	153.2	28.8	100.9	198.0	305.5	668.7
35	40	1200	BBPSC	7	49	220.1	185.9	8.1	88.9	149.5	283.5	855.8
35	40	1200	BBPSC	8	58	209.5	151.2	9.6	110.7	184.9	235.9	753.2

35	40	1200	BBPSC	9	58	184.5	124.3	7.9	102.1	168.0	215.0	633.2
35	40	1200	BBPSC	10	69	201.6	120.2	12.0	127.8	191.8	234.3	613.4
35	40	1200	BBPSC	11	69	233.9	171.9	9.2	94.5	207.4	314.7	720.6
35	40	1200	BBPSC	12	19	101.2	94.4	0.0	9.5	99.2	167.6	274.4
36	40	1200	BBPSC	1	887	126.4	90.8	0.0	55.6	118.7	175.0	513.5
36	40	1200	BBPSC	2	50	132.7	88.3	4.7	66.2	122.4	169.3	406.4
36	40	1200	BBPSC	3	63	115.1	86.1	0.5	53.6	104.6	168.3	399.5
36	40	1200	BBPSC	4	64	119.3	81.1	1.3	59.1	100.7	172.5	353.1
36	40	1200	BBPSC	5	74	128.9	87.3	0.3	75.0	124.5	175.8	417.0
36	40	1200	BBPSC	6	63	121.7	79.6	1.4	72.7	106.2	171.9	441.1
36	40	1200	BBPSC	7	61	117.5	80.9	2.6	45.2	120.6	174.1	405.7
36	40	1200	BBPSC	8	46	106.6	73.3	1.2	47.7	96.8	141.1	283.4
36	40	1200	BBPSC	9	55	95.6	56.8	2.1	57.0	86.9	130.1	249.2
36	40	1200	BBPSC	10	63	92.9	65.0	2.1	30.1	82.7	152.7	228.3
36	40	1200	BBPSC	11	59	100.9	65.2	1.1	47.5	96.8	136.8	285.6
36	40	1200	BBPSC	12	7	1.9	3.1	0.0	0.1	0.2	2.3	8.5
37	40	1400	BBPSC	1	901	359.0	284.7	0.0	183.5	297.6	412.3	1778.9
37	40	1400	BBPSC	2	46	323.8	271.1	7.3	206.9	265.6	347.2	1419.2
37	40	1400	BBPSC	3	56	373.5	349.3	4.2	169.0	300.9	398.6	1794.6
37	40	1400	BBPSC	4	66	331.7	257.9	39.7	144.7	287.2	391.6	1302.6
37	40	1400	BBPSC	5	64	361.3	288.3	21.4	139.0	306.1	423.6	1527.8
37	40	1400	BBPSC	6	61	258.6	206.8	35.0	141.5	219.4	320.4	1331.9
37	40	1400	BBPSC	7	64	375.7	296.9	23.0	172.1	293.7	479.2	1397.3
37	40	1400	BBPSC	8	55	338.7	273.2	5.9	152.9	261.6	392.4	1249.4
37	40	1400	BBPSC	9	71	317.9	268.3	5.3	144.0	270.2	350.8	1393.3
37	40	1400	BBPSC	10	67	350.2	290.5	16.2	125.9	293.1	430.4	1451.4
37	40	1400	BBPSC	11	67	289.6	223.3	42.1	164.8	252.3	341.6	1233.1
37	40	1400	BBPSC	12	15	214.7	145.9	0.2	130.7	218.9	333.5	415.2
38	40	1400	BBPSC	1	891	366.7	320.6	0.0	167.6	293.4	443.7	1800.1
38	40	1400	BBPSC	2	45	472.4	413.2	33.9	205.1	377.3	531.0	1760.4
38	40	1400	BBPSC	3	50	370.8	345.8	3.3	167.3	272.5	453.4	1759.3
38	40	1400	BBPSC	4	78	368.3	317.8	1.7	177.7	281.5	437.4	1332.9
38	40	1400	BBPSC	5	59	311.0	226.6	4.0	177.3	261.2	389.1	1303.2
38	40	1400	BBPSC	6	64	335.1	274.1	4.0	168.5	266.4	369.2	1247.8
38	40	1400	BBPSC	7	50	321.8	273.1	4.9	159.5	262.4	419.3	1274.3
38	40	1400	BBPSC	8	61	345.3	301.0	11.1	163.8	261.5	431.1	1398.5
38	40	1400	BBPSC	9	57	314.8	292.3	18.1	145.6	215.2	394.5	1423.9
38	40	1400	BBPSC	10	70	354.2	262.1	12.5	185.9	281.3	415.0	1266.4
38	40	1400	BBPSC	11	71	355.8	260.6	29.7	171.3	325.2	465.1	1210.4
38	40	1400	BBPSC	12	19	173.8	136.1	0.0	50.9	187.8	255.0	416.7
39	40	1400	BBPSC	1	911	285.0	187.4	0.1	157.5	274.0	373.7	1237.4
39	40	1400	BBPSC	2	53	247.9	137.6	26.0	126.5	253.9	324.4	560.4
39	40	1400	BBPSC	3	64	239.7	143.9	2.2	155.6	238.2	332.1	652.7
39	40	1400	BBPSC	4	69	277.0	165.5	18.0	171.3	258.1	351.7	1125.0
39	40	1400	BBPSC	5	76	287.5	205.6	0.4	168.3	244.0	351.5	1127.5
39	40	1400	BBPSC	6	68	274.4	185.6	0.8	162.3	271.6	358.8	1066.9
39	40	1400	BBPSC	7	59	239.3	135.5	0.7	127.1	235.4	308.7	592.8
39	40	1400	BBPSC	8	50	243.4	131.0	10.1	172.2	229.3	310.5	614.9
39	40	1400	BBPSC	9	58	229.8	136.0	3.8	123.5	214.9	315.1	590.7
39	40	1400	BBPSC	10	67	256.5	132.9	1.8	152.6	261.6	375.1	565.2
39	40	1400	BBPSC	11	59	215.2	120.5	0.7	143.6	230.1	299.7	445.2
39	40	1400	BBPSC	12	7	81.4	85.5	0.2	24.3	67.7	101.8	250.0
40	40	1600	BBPSC	1	910	495.5	460.0	0.0	228.9	345.5	533.8	2420.8
40	40	1600	BBPSC	2	43	425.5	404.6	10.0	192.7	372.0	475.2	1932.3
40	40	1600	BBPSC	3	54	532.0	518.0	34.9	203.3	388.2	551.1	2411.1
40	40	1600	BBPSC	4	67	512.1	505.4	41.2	233.0	358.2	577.0	2213.2
40	40	1600	BBPSC	5	58	504.2	457.4	42.4	220.5	386.9	540.6	2195.3
40	40	1600	BBPSC	6	60	343.4	325.1	18.2	156.4	238.9	407.2	1846.7
40	40	1600	BBPSC	7	61	409.4	333.2	3.0	190.5	345.8	502.7	1868.6
40	40	1600	BBPSC	8	55	419.1	401.7	9.1	210.7	305.7	491.1	2065.9
40	40	1600	BBPSC	9	72	397.4	301.7	31.9	213.1	343.2	480.4	1527.0

40	40	1600	BBPSC	10	64	437.5	394.3	29.6	210.4	336.6	506.2	2013.5
40	40	1600	BBPSC	11	68	404.6	346.1	56.7	216.2	309.9	514.8	1885.7
40	40	1600	BBPSC	12	14	315.1	192.9	0.2	182.2	369.7	441.7	580.9
41	40	1600	BBPSC	1	914	394.0	331.3	0.0	183.1	315.6	512.0	2156.4
41	40	1600	BBPSC	2	50	468.9	341.1	52.6	304.8	416.5	578.4	1781.9
41	40	1600	BBPSC	3	53	414.1	320.6	54.1	185.0	283.0	587.5	1426.0
41	40	1600	BBPSC	4	82	434.6	388.8	1.7	163.7	319.3	573.5	1688.0
41	40	1600	BBPSC	5	63	410.2	307.4	1.5	205.3	325.6	550.2	1438.5
41	40	1600	BBPSC	6	65	398.2	335.1	44.9	185.7	307.9	523.5	1749.2
41	40	1600	BBPSC	7	52	370.8	323.5	12.3	141.5	280.0	437.5	1661.7
41	40	1600	BBPSC	8	58	366.7	365.9	9.3	141.6	278.2	385.8	1705.5
41	40	1600	BBPSC	9	59	376.6	375.4	16.1	139.8	268.5	444.1	1823.0
41	40	1600	BBPSC	10	74	386.9	314.0	16.6	189.2	309.8	460.9	1774.2
41	40	1600	BBPSC	11	68	366.9	264.3	29.9	173.0	324.6	522.0	1299.5
41	40	1600	BBPSC	12	19	220.5	166.4	0.0	55.9	224.5	385.1	448.7
42	40	1600	BBPSC	1	919	388.4	242.4	0.1	223.0	353.1	518.7	1652.2
42	40	1600	BBPSC	2	56	331.3	182.3	15.0	188.1	319.3	505.4	682.6
42	40	1600	BBPSC	3	68	345.3	232.0	2.4	169.4	324.5	496.0	1073.8
42	40	1600	BBPSC	4	70	396.4	230.8	56.2	222.5	348.9	518.1	1133.6
42	40	1600	BBPSC	5	76	374.4	286.5	1.7	197.3	312.5	508.2	1679.3
42	40	1600	BBPSC	6	70	390.2	268.4	10.4	208.1	325.8	540.3	1738.9
42	40	1600	BBPSC	7	61	351.7	195.5	43.7	202.4	322.0	505.7	871.0
42	40	1600	BBPSC	8	49	372.0	209.2	15.1	204.7	362.3	517.5	793.6
42	40	1600	BBPSC	9	61	349.0	244.6	7.7	190.2	297.6	519.5	1125.6
42	40	1600	BBPSC	10	66	373.4	245.6	20.2	226.8	320.7	512.3	1503.2
42	40	1600	BBPSC	11	59	346.5	167.0	19.0	215.7	325.5	452.6	823.6
42	40	1600	BBPSC	12	7	158.3	165.2	0.2	29.7	111.0	252.5	432.5
43	60	400	BBPSC	1	318	47.3	41.7	0.0	12.4	38.9	70.0	232.6
43	60	400	BBPSC	2	39	33.9	37.1	0.0	1.5	23.6	51.6	147.0
43	60	400	BBPSC	3	52	42.6	42.1	0.0	1.7	41.1	65.8	137.6
43	60	400	BBPSC	4	46	43.8	45.0	0.3	11.5	31.9	68.4	184.9
43	60	400	BBPSC	5	44	35.4	34.4	0.0	7.7	27.4	55.1	174.4
43	60	400	BBPSC	6	51	35.6	34.7	0.0	5.4	28.8	54.4	163.4
43	60	400	BBPSC	7	55	24.7	26.5	0.0	1.6	18.9	40.6	140.0
43	60	400	BBPSC	8	44	22.5	20.9	0.0	2.1	21.9	33.0	85.1
43	60	400	BBPSC	9	54	27.1	28.7	0.0	0.7	23.6	41.4	114.3
43	60	400	BBPSC	10	56	26.7	29.6	0.1	3.1	19.8	38.1	137.9
43	60	400	BBPSC	11	43	33.1	32.4	0.4	8.6	22.4	48.3	139.8
43	60	400	BBPSC	12	5	0.2	0.1	0.0	0.2	0.3	0.3	0.4
44	60	400	BBPSC	1	283	43.3	42.0	0.0	4.9	31.4	65.9	186.3
44	60	400	BBPSC	2	42	38.4	44.1	0.0	0.7	29.0	62.2	172.3
44	60	400	BBPSC	3	57	34.9	32.3	0.0	3.5	27.8	57.5	123.2
44	60	400	BBPSC	4	62	39.5	38.0	0.0	5.3	29.0	64.1	136.3
44	60	400	BBPSC	5	54	31.7	35.2	0.0	2.7	21.6	43.9	142.0
44	60	400	BBPSC	6	41	28.7	34.6	0.0	1.4	20.1	39.4	127.1
44	60	400	BBPSC	7	54	35.9	38.0	0.0	2.2	23.4	54.8	141.0
44	60	400	BBPSC	8	39	25.5	31.8	0.0	1.0	11.8	41.6	122.7
44	60	400	BBPSC	9	47	29.6	34.4	0.0	2.0	19.5	40.2	128.4
44	60	400	BBPSC	10	48	36.6	36.9	0.0	9.4	22.3	51.5	145.3
44	60	400	BBPSC	11	48	25.7	27.0	0.0	1.9	18.6	40.7	101.7
44	60	400	BBPSC	12	6	4.2	6.3	0.0	0.2	1.1	5.5	16.0
45	60	400	BBPSC	1	292	38.2	41.3	0.0	2.9	26.9	59.2	224.1
45	60	400	BBPSC	2	39	44.0	38.2	0.0	8.0	41.3	64.7	163.8
45	60	400	BBPSC	3	48	35.8	38.3	0.0	5.4	24.9	51.7	155.4
45	60	400	BBPSC	4	52	31.6	32.5	0.0	1.5	24.9	49.9	118.1
45	60	400	BBPSC	5	38	30.1	25.4	0.3	9.6	20.6	57.9	69.8
45	60	400	BBPSC	6	53	31.3	29.5	0.0	3.8	24.0	51.5	110.7
45	60	400	BBPSC	7	66	30.5	27.1	0.0	4.8	27.5	48.0	112.3
45	60	400	BBPSC	8	41	24.7	26.4	0.0	1.9	12.6	39.9	102.8
45	60	400	BBPSC	9	46	15.6	19.7	0.0	1.1	4.4	22.0	65.8
45	60	400	BBPSC	10	46	20.9	17.5	0.0	4.1	18.1	34.4	62.5

45	60	400	BBPSC	11	44	20.3	21.4	0.0	3.2	15.3	28.7	74.3
45	60	400	BBPSC	12	4	0.1	0.1	0.0	0.0	0.1	0.2	0.2
46	60	600	BBPSC	1	406	52.6	46.0	0.0	13.2	43.9	80.0	206.0
46	60	600	BBPSC	2	48	55.6	42.9	0.0	21.5	41.1	86.4	165.3
46	60	600	BBPSC	3	63	50.9	47.8	0.0	10.7	35.3	76.6	197.0
46	60	600	BBPSC	4	57	62.9	50.2	0.0	22.4	52.0	98.8	213.8
46	60	600	BBPSC	5	53	48.2	37.6	0.0	20.1	40.1	73.8	156.6
46	60	600	BBPSC	6	64	37.9	34.9	0.0	10.1	30.2	53.5	141.7
46	60	600	BBPSC	7	62	42.9	39.8	0.0	10.2	33.6	58.5	163.8
46	60	600	BBPSC	8	53	40.8	36.0	0.3	20.2	30.9	48.8	155.2
46	60	600	BBPSC	9	70	39.1	36.3	0.0	9.5	31.0	57.8	188.0
46	60	600	BBPSC	10	65	43.5	39.4	0.4	10.5	32.8	56.2	141.7
46	60	600	BBPSC	11	54	37.9	36.5	0.0	14.6	26.9	47.6	141.6
46	60	600	BBPSC	12	8	0.7	0.8	0.0	0.3	0.3	0.8	2.4
47	60	600	BBPSC	1	360	58.3	56.3	0.0	15.5	45.0	83.6	363.2
47	60	600	BBPSC	2	54	47.5	49.7	0.0	7.0	41.9	69.5	299.2
47	60	600	BBPSC	3	67	48.3	43.9	0.0	8.6	44.3	73.5	173.3
47	60	600	BBPSC	4	76	41.9	33.9	0.0	14.7	34.8	62.6	132.5
47	60	600	BBPSC	5	64	39.2	39.5	0.4	4.5	29.4	57.2	180.6
47	60	600	BBPSC	6	50	49.1	44.4	0.3	15.8	35.3	80.2	164.0
47	60	600	BBPSC	7	65	44.8	38.7	0.0	17.2	40.0	66.7	188.9
47	60	600	BBPSC	8	52	46.4	35.7	0.7	14.2	45.6	67.7	124.3
47	60	600	BBPSC	9	61	43.8	46.0	0.0	7.4	30.2	63.2	185.0
47	60	600	BBPSC	10	64	40.0	41.7	0.0	7.2	26.6	61.1	191.5
47	60	600	BBPSC	11	65	36.4	35.5	0.0	8.2	27.1	47.0	132.7
47	60	600	BBPSC	12	8	1.1	2.3	0.0	0.0	0.3	0.6	6.8
48	60	600	BBPSC	1	368	40.7	38.4	0.0	5.3	32.7	62.1	169.1
48	60	600	BBPSC	2	50	47.6	40.8	0.2	18.9	36.4	75.1	182.7
48	60	600	BBPSC	3	59	43.7	32.6	0.0	15.0	44.9	64.7	124.0
48	60	600	BBPSC	4	66	37.1	35.3	0.0	2.7	30.5	63.7	139.7
48	60	600	BBPSC	5	51	39.4	33.4	0.0	8.1	34.4	66.0	124.0
48	60	600	BBPSC	6	62	38.2	29.2	0.3	11.4	34.2	60.4	110.6
48	60	600	BBPSC	7	82	34.7	31.4	0.0	7.2	30.8	59.0	134.8
48	60	600	BBPSC	8	54	47.2	33.8	0.0	17.8	45.9	73.4	123.5
48	60	600	BBPSC	9	56	29.5	30.7	0.2	5.1	16.3	48.9	129.0
48	60	600	BBPSC	10	54	26.2	26.8	0.0	5.1	19.6	37.0	119.7
48	60	600	BBPSC	11	57	30.2	26.4	0.0	5.8	25.1	45.1	109.3
48	60	600	BBPSC	12	5	0.2	0.2	0.0	0.0	0.2	0.3	0.5
49	60	800	BBPSC	1	485	69.0	59.0	0.0	18.2	56.3	110.7	332.4
49	60	800	BBPSC	2	60	72.7	65.1	0.2	9.1	67.0	115.8	237.6
49	60	800	BBPSC	3	77	73.1	57.1	0.0	23.4	61.9	118.2	227.4
49	60	800	BBPSC	4	77	74.7	60.4	0.0	21.5	70.2	108.4	216.7
49	60	800	BBPSC	5	65	73.1	57.6	0.0	31.0	56.2	115.6	214.6
49	60	800	BBPSC	6	69	59.9	56.4	0.0	9.6	48.5	99.4	220.4
49	60	800	BBPSC	7	70	65.3	56.2	0.0	15.7	54.9	109.0	205.7
49	60	800	BBPSC	8	61	53.9	49.1	0.4	10.5	44.7	76.9	170.1
49	60	800	BBPSC	9	80	63.1	48.4	0.0	20.4	54.0	92.6	188.3
49	60	800	BBPSC	10	75	64.1	53.4	0.3	22.6	43.0	107.8	201.3
49	60	800	BBPSC	11	74	67.8	49.2	2.5	30.7	56.2	97.1	190.8
49	60	800	BBPSC	12	11	1.5	2.7	0.0	0.1	0.2	1.5	8.8
50	60	800	BBPSC	1	434	65.1	56.7	0.0	17.8	51.5	101.3	283.7
50	60	800	BBPSC	2	62	66.4	64.8	0.5	23.4	49.0	94.0	295.3
50	60	800	BBPSC	3	74	63.3	58.8	0.2	8.2	51.1	97.4	229.8
50	60	800	BBPSC	4	85	69.6	50.2	0.0	26.8	60.9	97.8	211.3
50	60	800	BBPSC	5	75	66.5	48.6	0.5	24.2	67.8	96.9	233.2
50	60	800	BBPSC	6	63	61.2	52.5	0.4	19.9	47.2	91.7	232.6
50	60	800	BBPSC	7	77	62.0	53.2	0.0	16.3	48.5	99.7	227.6
50	60	800	BBPSC	8	59	62.1	49.9	0.0	22.3	56.7	102.9	204.1
50	60	800	BBPSC	9	69	60.1	50.3	0.7	23.3	50.6	83.7	229.0
50	60	800	BBPSC	10	78	55.6	48.9	0.0	13.0	45.5	83.5	196.3
50	60	800	BBPSC	11	77	64.0	61.6	1.2	14.1	37.1	94.7	243.4

50	60	800	BBPSC	12	9	0.9	1.3	0.0	0.0	0.5	0.6	3.4
51	60	800	BBPSC	1	426	51.1	44.0	0.0	17.8	44.4	73.8	251.2
51	60	800	BBPSC	2	59	51.2	40.6	0.0	19.1	47.3	74.9	228.9
51	60	800	BBPSC	3	74	52.1	38.4	0.1	24.7	47.0	76.4	221.4
51	60	800	BBPSC	4	78	46.4	44.0	0.0	14.4	34.4	66.8	231.2
51	60	800	BBPSC	5	56	41.9	34.6	0.2	13.1	35.4	59.7	154.2
51	60	800	BBPSC	6	75	46.8	35.9	0.3	22.2	39.5	64.4	160.1
51	60	800	BBPSC	7	93	50.3	38.3	1.2	22.9	46.5	61.1	170.1
51	60	800	BBPSC	8	65	45.9	33.1	0.2	17.3	45.9	63.0	139.6
51	60	800	BBPSC	9	67	42.0	35.8	0.3	9.8	34.4	66.5	151.1
51	60	800	BBPSC	10	63	35.7	28.6	0.8	10.4	30.8	54.6	127.7
51	60	800	BBPSC	11	72	31.1	27.8	0.4	10.6	22.3	41.5	117.1
51	60	800	BBPSC	12	6	2.5	4.3	0.0	0.0	0.9	2.0	11.0
52	60	1000	BBPSC	1	572	103.1	73.0	0.0	43.3	97.7	145.2	378.1
52	60	1000	BBPSC	2	73	105.3	66.9	2.6	52.9	107.2	151.8	245.2
52	60	1000	BBPSC	3	87	97.4	59.6	0.2	51.6	103.7	134.7	309.1
52	60	1000	BBPSC	4	93	102.7	69.9	0.3	44.7	104.1	145.0	289.3
52	60	1000	BBPSC	5	74	101.4	75.3	0.3	51.3	93.8	134.6	381.7
52	60	1000	BBPSC	6	82	96.4	63.1	0.4	44.6	90.3	148.5	224.3
52	60	1000	BBPSC	7	81	96.4	63.3	2.3	48.3	81.8	134.1	273.3
52	60	1000	BBPSC	8	72	78.1	61.9	4.1	26.7	61.1	117.0	255.8
52	60	1000	BBPSC	9	91	93.8	57.0	1.6	52.3	90.5	136.6	259.5
52	60	1000	BBPSC	10	92	89.2	64.0	0.4	35.6	80.8	123.2	259.8
52	60	1000	BBPSC	11	90	91.8	60.3	3.1	46.4	83.9	134.5	212.1
52	60	1000	BBPSC	12	12	3.4	8.6	0.0	0.2	0.3	1.7	30.3
53	60	1000	BBPSC	1	508	78.4	68.3	0.0	21.8	62.1	120.0	345.6
53	60	1000	BBPSC	2	64	86.6	72.2	0.0	31.3	76.0	131.3	295.4
53	60	1000	BBPSC	3	90	83.2	67.6	0.1	27.6	71.1	121.5	379.2
53	60	1000	BBPSC	4	93	84.8	67.7	0.3	27.6	65.8	130.3	283.6
53	60	1000	BBPSC	5	88	78.2	60.1	0.9	28.6	60.6	113.5	237.0
53	60	1000	BBPSC	6	75	79.3	61.7	0.2	38.7	66.0	112.2	224.1
53	60	1000	BBPSC	7	97	82.2	58.6	0.4	36.6	67.9	122.1	233.5
53	60	1000	BBPSC	8	72	77.1	69.1	0.4	26.5	51.2	113.2	349.8
53	60	1000	BBPSC	9	81	85.7	67.2	0.9	31.7	67.9	139.0	229.6
53	60	1000	BBPSC	10	90	81.6	65.3	1.0	24.2	69.0	131.3	235.6
53	60	1000	BBPSC	11	89	79.2	60.0	0.6	28.3	66.9	117.8	249.4
53	60	1000	BBPSC	12	13	2.0	3.6	0.0	0.0	0.5	0.7	10.7
54	60	1000	BBPSC	1	512	67.0	54.4	0.0	26.3	57.5	95.2	283.9
54	60	1000	BBPSC	2	67	69.8	49.9	0.0	32.2	64.4	97.9	257.1
54	60	1000	BBPSC	3	84	66.9	52.7	0.6	31.4	57.3	95.6	259.4
54	60	1000	BBPSC	4	95	58.2	52.8	0.3	17.2	47.9	78.8	259.2
54	60	1000	BBPSC	5	65	67.6	48.2	1.0	35.4	62.5	86.6	234.2
54	60	1000	BBPSC	6	85	63.0	46.9	0.3	29.3	56.9	91.7	196.3
54	60	1000	BBPSC	7	108	64.6	43.6	0.0	30.8	65.0	92.6	203.9
54	60	1000	BBPSC	8	76	70.4	40.1	0.7	38.9	71.9	100.6	167.3
54	60	1000	BBPSC	9	72	52.8	43.0	0.1	15.0	46.6	77.6	169.2
54	60	1000	BBPSC	10	72	47.1	36.0	1.7	19.9	41.9	67.7	196.4
54	60	1000	BBPSC	11	83	52.5	42.5	0.0	15.8	46.4	85.0	155.8
54	60	1000	BBPSC	12	6	1.8	3.6	0.0	0.1	0.2	0.7	9.2
55	60	1200	BBPSC	1	604	220.3	146.0	0.0	124.6	192.4	293.5	783.4
55	60	1200	BBPSC	2	76	230.5	144.5	5.5	111.1	202.1	317.7	645.7
55	60	1200	BBPSC	3	87	213.4	118.4	0.3	139.1	200.5	264.8	649.2
55	60	1200	BBPSC	4	100	208.6	137.5	2.7	125.0	185.3	275.6	614.4
55	60	1200	BBPSC	5	74	201.0	154.2	10.3	90.5	168.4	251.1	623.3
55	60	1200	BBPSC	6	93	203.3	133.6	2.9	109.5	184.7	260.1	732.2
55	60	1200	BBPSC	7	90	190.8	124.3	17.6	109.4	173.4	246.1	632.4
55	60	1200	BBPSC	8	72	170.6	120.6	5.4	82.9	159.5	214.8	634.3
55	60	1200	BBPSC	9	95	186.7	114.7	4.7	112.5	160.0	229.1	614.5
55	60	1200	BBPSC	10	105	191.8	131.8	10.5	108.7	178.9	223.3	625.2
55	60	1200	BBPSC	11	96	179.1	118.6	17.2	92.9	171.4	230.2	592.0
55	60	1200	BBPSC	12	14	99.5	82.6	0.3	15.3	92.4	162.9	233.7

56	60	1200	BBPSC	1	570	188.7	132.0	0.0	90.9	164.9	267.5	727.7
56	60	1200	BBPSC	2	71	212.8	146.4	0.5	107.7	180.6	295.2	664.4
56	60	1200	BBPSC	3	99	194.5	148.6	3.8	80.8	168.8	265.1	696.0
56	60	1200	BBPSC	4	106	226.0	165.7	0.5	116.1	195.9	290.5	727.5
56	60	1200	BBPSC	5	97	178.7	125.4	1.9	69.5	176.7	264.9	548.1
56	60	1200	BBPSC	6	79	205.5	150.3	1.7	94.2	182.3	278.5	702.6
56	60	1200	BBPSC	7	104	182.6	117.0	0.4	96.7	172.0	244.0	536.8
56	60	1200	BBPSC	8	79	174.1	117.5	2.1	87.2	150.4	226.1	480.1
56	60	1200	BBPSC	9	89	181.8	137.6	5.1	99.2	148.4	226.7	636.8
56	60	1200	BBPSC	10	99	175.7	125.5	12.0	83.8	144.4	238.7	598.6
56	60	1200	BBPSC	11	100	163.1	98.5	5.0	96.6	154.2	226.3	630.5
56	60	1200	BBPSC	12	19	60.7	64.1	0.0	8.7	45.4	107.0	193.0
57	60	1200	BBPSC	1	597	116.7	85.2	0.0	52.3	105.1	157.5	452.1
57	60	1200	BBPSC	2	77	113.5	73.8	7.2	58.1	102.8	153.8	391.9
57	60	1200	BBPSC	3	92	107.5	72.8	0.4	52.4	96.9	146.0	347.4
57	60	1200	BBPSC	4	102	101.4	80.4	0.6	38.7	79.0	140.8	328.3
57	60	1200	BBPSC	5	79	104.3	78.7	0.9	48.8	87.4	134.5	352.4
57	60	1200	BBPSC	6	93	88.5	67.1	0.3	40.1	74.6	125.1	299.1
57	60	1200	BBPSC	7	113	111.7	69.7	0.4	62.0	110.9	156.9	322.3
57	60	1200	BBPSC	8	89	111.0	70.2	1.0	62.4	111.3	151.4	382.1
57	60	1200	BBPSC	9	78	103.8	63.9	0.1	57.1	106.9	141.8	244.4
57	60	1200	BBPSC	10	84	84.0	56.7	2.0	45.8	77.6	117.3	297.1
57	60	1200	BBPSC	11	91	82.6	59.8	1.1	28.5	73.9	119.6	249.1
57	60	1200	BBPSC	12	7	2.0	3.1	0.0	0.1	0.3	2.6	8.5
58	60	1400	BBPSC	1	598	404.1	345.8	0.0	200.3	301.1	425.9	1799.6
58	60	1400	BBPSC	2	73	401.4	381.0	8.6	201.3	297.2	385.7	1822.1
58	60	1400	BBPSC	3	91	331.8	254.1	0.3	174.9	274.0	382.5	1330.1
58	60	1400	BBPSC	4	97	386.9	359.9	0.8	199.5	283.5	402.9	1852.1
58	60	1400	BBPSC	5	75	373.6	354.3	7.3	172.1	283.5	415.5	1825.8
58	60	1400	BBPSC	6	93	391.4	340.3	4.2	191.2	315.7	429.9	1811.5
58	60	1400	BBPSC	7	88	375.8	276.7	3.3	154.7	284.6	479.0	1181.3
58	60	1400	BBPSC	8	77	309.1	276.3	35.4	142.8	226.5	377.8	1377.0
58	60	1400	BBPSC	9	100	378.4	326.2	5.9	187.0	260.7	388.4	1392.5
58	60	1400	BBPSC	10	100	338.7	294.9	12.9	183.5	268.7	376.0	1506.4
58	60	1400	BBPSC	11	97	337.2	263.1	26.3	183.2	283.2	390.6	1659.8
58	60	1400	BBPSC	12	14	229.6	149.6	0.2	142.1	293.9	332.9	457.0
59	60	1400	BBPSC	1	579	324.4	282.9	0.0	145.2	272.7	396.2	1621.0
59	60	1400	BBPSC	2	72	381.2	333.4	3.8	173.1	279.7	486.8	1590.0
59	60	1400	BBPSC	3	99	362.0	282.2	4.3	163.4	307.0	498.6	1315.5
59	60	1400	BBPSC	4	103	361.2	319.8	1.3	160.2	267.0	433.0	1420.7
59	60	1400	BBPSC	5	97	355.0	298.4	2.8	159.9	283.1	469.7	1452.4
59	60	1400	BBPSC	6	80	303.5	287.2	1.7	131.2	227.6	380.2	1598.5
59	60	1400	BBPSC	7	112	320.1	222.6	3.2	176.2	285.2	405.6	1367.0
59	60	1400	BBPSC	8	82	310.2	255.9	3.1	139.4	245.3	400.8	1274.2
59	60	1400	BBPSC	9	92	286.8	246.7	6.8	114.8	244.3	386.6	1292.7
59	60	1400	BBPSC	10	98	284.9	233.3	12.5	113.6	233.6	379.7	1025.9
59	60	1400	BBPSC	11	102	310.6	221.6	14.7	148.0	264.4	411.3	1067.4
59	60	1400	BBPSC	12	19	147.4	109.2	0.0	55.4	162.8	233.1	323.7
60	60	1400	BBPSC	1	605	271.6	185.6	0.1	142.9	256.1	369.0	1120.4
60	60	1400	BBPSC	2	83	276.8	186.5	0.4	151.7	274.0	375.1	1031.9
60	60	1400	BBPSC	3	93	260.7	152.6	1.1	164.8	250.1	346.3	1015.6
60	60	1400	BBPSC	4	105	237.3	141.8	2.6	134.4	204.8	334.1	579.0
60	60	1400	BBPSC	5	81	233.9	124.2	26.0	126.0	225.4	316.1	578.3
60	60	1400	BBPSC	6	97	241.1	139.3	2.4	153.2	223.5	323.4	662.7
60	60	1400	BBPSC	7	116	266.9	182.8	1.2	153.2	234.2	334.6	1012.6
60	60	1400	BBPSC	8	92	248.8	169.8	2.9	119.3	246.7	326.8	952.0
60	60	1400	BBPSC	9	79	226.0	112.9	10.1	154.1	216.8	300.4	535.9
60	60	1400	BBPSC	10	90	212.9	136.2	1.8	115.0	190.2	295.2	638.8
60	60	1400	BBPSC	11	90	240.6	139.4	0.7	116.3	237.7	336.1	570.4
60	60	1400	BBPSC	12	7	81.8	67.4	0.1	34.6	69.6	128.9	176.2
61	60	1600	BBPSC	1	591	496.2	484.9	0.0	231.0	360.8	540.2	2581.5

61	60	1600	BBPSC	2	77	486.8	476.0	10.5	239.6	344.9	513.8	2406.6
61	60	1600	BBPSC	3	88	424.5	445.5	44.0	174.6	310.9	489.5	2574.2
61	60	1600	BBPSC	4	99	469.5	447.1	11.2	247.0	358.9	514.3	2557.8
61	60	1600	BBPSC	5	75	430.7	381.1	10.0	202.4	334.5	565.8	2046.0
61	60	1600	BBPSC	6	89	481.6	433.2	30.4	238.9	402.8	580.8	2559.3
61	60	1600	BBPSC	7	91	494.7	436.9	34.5	196.5	373.2	580.4	2291.7
61	60	1600	BBPSC	8	78	376.8	334.6	53.6	165.2	292.8	478.3	2052.4
61	60	1600	BBPSC	9	91	370.6	314.2	1.4	180.1	308.3	501.8	2025.7
61	60	1600	BBPSC	10	96	399.7	322.4	31.9	204.3	334.9	491.5	1892.3
61	60	1600	BBPSC	11	98	409.5	298.8	29.6	208.5	354.3	515.2	1956.5
61	60	1600	BBPSC	12	14	321.9	221.2	0.2	176.0	342.7	409.7	667.3
62	60	1600	BBPSC	1	572	508.6	437.8	0.0	223.1	394.3	610.9	2292.2
62	60	1600	BBPSC	2	71	534.4	484.1	7.4	206.8	396.8	628.8	2160.0
62	60	1600	BBPSC	3	87	563.5	532.3	6.5	212.7	407.5	648.2	2132.3
62	60	1600	BBPSC	4	99	466.5	426.0	1.2	185.1	325.6	573.5	1777.8
62	60	1600	BBPSC	5	93	542.2	492.1	49.0	211.5	409.1	594.8	2142.3
62	60	1600	BBPSC	6	81	515.3	485.1	1.7	219.3	369.3	600.0	2202.8
62	60	1600	BBPSC	7	99	514.8	465.3	1.5	220.4	389.3	595.5	2124.5
62	60	1600	BBPSC	8	74	453.6	396.5	46.7	198.5	340.6	508.7	1970.2
62	60	1600	BBPSC	9	90	411.8	419.3	9.3	172.7	296.0	485.5	2073.3
62	60	1600	BBPSC	10	91	507.1	518.8	16.1	205.5	337.5	545.8	2238.6
62	60	1600	BBPSC	11	100	496.0	458.1	29.9	232.7	366.8	569.2	2192.4
62	60	1600	BBPSC	12	19	313.6	226.3	0.0	102.7	330.0	550.6	611.3
63	60	1600	BBPSC	1	615	384.5	261.9	0.1	199.2	340.2	526.8	1780.8
63	60	1600	BBPSC	2	81	401.4	283.0	16.6	212.4	344.1	570.1	1403.1
63	60	1600	BBPSC	3	95	363.5	255.1	18.7	181.7	304.4	452.3	1518.7
63	60	1600	BBPSC	4	103	392.0	283.7	11.6	186.3	321.2	536.9	1427.4
63	60	1600	BBPSC	5	80	345.2	248.0	19.7	157.9	295.8	481.3	1431.0
63	60	1600	BBPSC	6	98	341.8	229.1	2.5	191.6	303.4	441.3	1068.6
63	60	1600	BBPSC	7	119	376.3	267.6	0.5	185.3	303.8	498.6	1454.0
63	60	1600	BBPSC	8	97	391.1	271.5	18.7	184.3	329.2	574.2	1510.9
63	60	1600	BBPSC	9	80	350.7	218.2	13.6	202.9	290.7	486.1	952.2
63	60	1600	BBPSC	10	91	340.4	252.5	5.9	166.1	273.5	450.1	1287.6
63	60	1600	BBPSC	11	88	337.7	194.7	19.0	199.7	299.1	444.6	934.8
63	60	1600	BBPSC	12	7	165.8	175.6	0.2	34.7	133.6	267.7	422.2
64	80	400	BBPSC	1	167	42.8	38.8	0.0	6.9	36.4	67.0	158.3
64	80	400	BBPSC	2	47	55.0	38.6	0.1	26.0	53.7	78.8	160.4
64	80	400	BBPSC	3	66	40.9	35.4	0.0	12.6	34.2	59.4	146.3
64	80	400	BBPSC	4	63	35.1	35.6	0.0	1.3	24.6	53.1	147.0
64	80	400	BBPSC	5	68	32.4	29.0	0.0	2.9	27.7	51.3	128.4
64	80	400	BBPSC	6	60	41.6	43.1	0.0	10.7	29.0	61.2	174.4
64	80	400	BBPSC	7	66	29.2	29.5	0.0	3.4	22.4	47.7	117.5
64	80	400	BBPSC	8	70	27.1	31.0	0.0	3.1	18.2	43.7	163.4
64	80	400	BBPSC	9	70	29.1	29.0	0.0	2.2	26.2	40.8	117.2
64	80	400	BBPSC	10	65	31.9	33.2	0.0	3.8	24.9	44.1	138.7
64	80	400	BBPSC	11	61	28.5	32.5	0.0	5.4	17.4	35.8	139.8
64	80	400	BBPSC	12	5	0.2	0.1	0.0	0.2	0.3	0.3	0.3
65	80	400	BBPSC	1	140	41.6	37.4	0.0	3.6	34.4	64.6	144.3
65	80	400	BBPSC	2	52	42.9	37.5	0.0	14.3	38.0	66.8	186.3
65	80	400	BBPSC	3	61	31.1	34.1	0.0	0.9	22.8	46.0	134.1
65	80	400	BBPSC	4	47	33.1	30.4	0.0	4.7	26.7	56.0	117.4
65	80	400	BBPSC	5	76	27.5	27.2	0.0	1.3	23.6	40.5	103.2
65	80	400	BBPSC	6	86	30.8	34.0	0.0	2.2	23.1	41.2	133.7
65	80	400	BBPSC	7	56	29.2	34.4	0.2	2.5	20.1	43.5	160.9
65	80	400	BBPSC	8	69	25.7	32.5	0.0	0.8	15.6	38.7	131.8
65	80	400	BBPSC	9	51	39.2	37.1	0.0	2.9	35.4	55.6	140.8
65	80	400	BBPSC	10	59	32.7	32.8	0.0	7.7	21.8	48.6	135.7
65	80	400	BBPSC	11	71	32.0	31.5	0.0	6.2	25.0	51.4	138.3
65	80	400	BBPSC	12	6	4.2	6.3	0.0	0.2	1.1	5.5	16.0
66	80	400	BBPSC	1	141	41.0	39.3	0.0	4.2	30.2	68.4	180.0
66	80	400	BBPSC	2	63	27.4	29.5	0.0	1.8	16.0	44.4	115.8

66	80	400	BBPSC	3	61	38.3	35.5	0.0	6.1	34.4	54.5	184.0
66	80	400	BBPSC	4	52	37.9	28.5	0.0	13.3	38.7	57.7	103.0
66	80	400	BBPSC	5	68	30.5	26.7	0.0	10.1	24.7	48.2	105.6
66	80	400	BBPSC	6	59	30.7	30.9	0.0	2.6	22.7	49.5	121.3
66	80	400	BBPSC	7	71	29.5	26.6	0.0	4.2	28.6	43.4	110.7
66	80	400	BBPSC	8	80	34.1	28.9	0.3	8.3	27.4	53.5	102.0
66	80	400	BBPSC	9	58	24.1	24.4	0.0	2.5	18.0	39.9	102.7
66	80	400	BBPSC	10	63	26.6	27.2	0.0	1.8	22.1	44.0	132.1
66	80	400	BBPSC	11	57	23.9	25.2	0.0	2.6	19.7	32.2	110.5
66	80	400	BBPSC	12	4	0.1	0.1	0.0	0.0	0.1	0.2	0.2
67	80	600	BBPSC	1	218	50.7	43.8	0.0	16.0	43.3	76.6	202.0
67	80	600	BBPSC	2	63	64.1	59.1	0.0	14.5	43.8	96.1	200.7
67	80	600	BBPSC	3	81	54.7	50.6	0.3	15.5	38.8	83.4	189.7
67	80	600	BBPSC	4	77	52.7	46.9	0.0	15.5	40.1	84.4	182.5
67	80	600	BBPSC	5	82	55.9	50.7	0.0	16.9	44.2	84.1	204.6
67	80	600	BBPSC	6	73	58.5	50.2	0.0	17.0	49.4	81.5	209.8
67	80	600	BBPSC	7	81	49.5	41.5	0.0	12.5	46.1	72.9	170.5
67	80	600	BBPSC	8	80	48.3	41.1	0.0	20.2	42.1	61.8	166.9
67	80	600	BBPSC	9	82	36.1	34.9	0.0	8.2	28.8	49.8	155.2
67	80	600	BBPSC	10	83	47.5	41.4	0.5	15.8	37.8	62.1	188.0
67	80	600	BBPSC	11	73	50.3	44.4	0.0	21.0	37.8	61.5	161.6
67	80	600	BBPSC	12	8	0.6	0.8	0.0	0.3	0.3	0.8	2.4
68	80	600	BBPSC	1	185	51.0	50.1	0.0	6.0	40.0	77.5	228.5
68	80	600	BBPSC	2	70	53.3	51.6	0.0	13.1	36.9	81.5	208.1
68	80	600	BBPSC	3	81	51.5	46.6	0.0	9.9	42.1	84.5	162.3
68	80	600	BBPSC	4	55	49.9	42.9	0.0	18.3	35.4	74.7	177.3
68	80	600	BBPSC	5	92	46.2	42.6	0.0	8.0	39.6	68.8	172.7
68	80	600	BBPSC	6	107	43.7	44.3	0.0	6.7	30.0	67.4	192.1
68	80	600	BBPSC	7	60	54.2	52.5	0.1	11.3	40.9	81.9	251.4
68	80	600	BBPSC	8	87	54.3	51.5	0.4	13.4	39.5	77.3	243.5
68	80	600	BBPSC	9	71	48.1	42.7	0.4	10.9	40.9	68.3	185.0
68	80	600	BBPSC	10	78	44.5	39.2	0.0	13.5	34.0	66.1	152.7
68	80	600	BBPSC	11	92	42.2	43.5	0.0	7.7	29.2	59.8	211.5
68	80	600	BBPSC	12	8	1.1	2.3	0.0	0.0	0.3	0.6	6.8
69	80	600	BBPSC	1	173	35.1	32.7	0.0	4.3	28.0	54.7	163.1
69	80	600	BBPSC	2	82	33.9	30.0	0.0	5.3	30.7	56.7	126.4
69	80	600	BBPSC	3	75	38.7	33.9	0.0	7.6	29.7	63.2	140.1
69	80	600	BBPSC	4	61	40.6	34.2	0.0	8.7	35.4	62.0	150.8
69	80	600	BBPSC	5	86	39.3	28.7	0.0	12.8	38.5	56.8	116.3
69	80	600	BBPSC	6	76	31.6	30.7	0.0	2.6	26.1	49.4	120.7
69	80	600	BBPSC	7	84	35.7	29.6	0.2	9.0	31.9	61.4	102.8
69	80	600	BBPSC	8	98	33.3	27.8	0.0	11.0	27.1	52.9	108.2
69	80	600	BBPSC	9	75	39.4	33.2	0.4	9.5	30.0	58.0	149.0
69	80	600	BBPSC	10	74	31.7	28.4	0.0	7.7	27.9	51.7	112.9
69	80	600	BBPSC	11	73	26.1	25.6	0.3	5.0	14.9	45.1	106.8
69	80	600	BBPSC	12	5	0.2	0.2	0.0	0.0	0.2	0.3	0.5
70	80	800	BBPSC	1	255	68.5	58.0	0.0	16.5	60.7	104.2	229.0
70	80	800	BBPSC	2	78	81.4	59.8	0.0	33.8	76.8	121.8	254.3
70	80	800	BBPSC	3	97	78.1	60.3	0.0	30.9	72.0	117.8	332.6
70	80	800	BBPSC	4	91	66.9	55.7	0.0	18.7	59.8	103.9	234.6
70	80	800	BBPSC	5	101	72.9	52.1	0.3	30.2	65.1	106.9	230.6
70	80	800	BBPSC	6	99	74.4	57.6	0.0	26.1	65.3	106.8	217.9
70	80	800	BBPSC	7	92	66.3	55.9	0.0	18.9	53.2	109.1	220.4
70	80	800	BBPSC	8	90	67.9	50.4	0.0	31.3	53.3	108.2	205.7
70	80	800	BBPSC	9	97	61.0	47.3	2.5	18.0	55.3	93.8	192.1
70	80	800	BBPSC	10	95	65.1	49.5	0.0	22.1	51.0	95.2	190.6
70	80	800	BBPSC	11	97	65.7	50.2	0.0	28.6	54.1	95.1	199.1
70	80	800	BBPSC	12	11	1.2	2.0	0.0	0.1	0.2	1.5	5.9
71	80	800	BBPSC	1	220	64.1	57.0	0.0	17.4	53.3	95.4	281.7
71	80	800	BBPSC	2	81	66.8	54.3	0.1	21.2	53.2	96.2	229.1
71	80	800	BBPSC	3	97	62.0	57.4	0.3	12.5	48.1	97.5	239.3

71	80	800	BBPSC	4	71	76.0	62.6	0.0	31.9	56.7	107.6	275.3
71	80	800	BBPSC	5	101	58.9	48.8	0.1	17.3	53.6	95.6	196.8
71	80	800	BBPSC	6	121	66.4	51.1	0.3	25.3	57.0	102.4	198.3
71	80	800	BBPSC	7	76	60.6	46.9	0.3	20.0	62.3	85.8	221.2
71	80	800	BBPSC	8	103	62.3	54.8	0.1	10.8	51.5	105.6	207.6
71	80	800	BBPSC	9	82	64.1	51.6	0.0	21.4	57.5	95.7	200.9
71	80	800	BBPSC	10	93	64.7	54.8	0.3	21.9	56.8	87.1	222.0
71	80	800	BBPSC	11	105	62.1	53.7	1.1	22.3	45.1	91.1	223.4
71	80	800	BBPSC	12	9	0.9	1.3	0.0	0.0	0.5	0.6	3.4
72	80	800	BBPSC	1	202	46.0	41.2	0.0	13.7	37.9	68.4	225.1
72	80	800	BBPSC	2	95	48.8	38.1	0.2	19.0	44.2	68.8	150.9
72	80	800	BBPSC	3	85	42.4	37.7	0.0	11.9	41.6	63.7	211.2
72	80	800	BBPSC	4	74	41.2	34.3	0.0	13.2	37.2	64.8	188.9
72	80	800	BBPSC	5	105	42.2	33.2	0.0	14.1	38.4	64.4	175.4
72	80	800	BBPSC	6	89	40.6	38.8	0.0	11.5	32.2	60.8	191.2
72	80	800	BBPSC	7	96	42.8	34.2	0.0	14.4	37.1	62.3	148.8
72	80	800	BBPSC	8	117	41.8	35.2	0.3	14.3	34.7	58.0	160.4
72	80	800	BBPSC	9	92	43.4	34.5	0.1	18.8	37.2	60.4	179.6
72	80	800	BBPSC	10	85	35.6	27.2	0.0	9.8	31.3	56.1	118.1
72	80	800	BBPSC	11	90	27.9	24.8	0.5	8.9	22.0	38.1	115.0
72	80	800	BBPSC	12	6	2.5	4.3	0.0	0.0	0.9	2.0	11.0
73	80	1000	BBPSC	1	289	99.7	71.2	0.0	38.1	96.6	148.2	352.2
73	80	1000	BBPSC	2	94	101.4	75.0	0.0	31.3	96.4	145.1	325.2
73	80	1000	BBPSC	3	120	105.4	69.5	0.5	46.6	102.3	148.0	288.9
73	80	1000	BBPSC	4	109	99.3	68.3	0.5	43.3	98.1	140.1	362.1
73	80	1000	BBPSC	5	115	107.4	61.2	0.4	49.6	114.4	146.5	244.1
73	80	1000	BBPSC	6	116	108.2	72.2	0.3	49.5	107.1	141.8	331.1
73	80	1000	BBPSC	7	104	97.0	70.6	0.5	29.9	94.8	145.5	308.7
73	80	1000	BBPSC	8	101	90.6	62.5	0.2	44.5	92.7	127.8	270.0
73	80	1000	BBPSC	9	111	86.1	57.5	0.6	33.4	87.7	130.8	237.8
73	80	1000	BBPSC	10	114	99.8	60.7	4.6	50.7	101.1	135.5	274.5
73	80	1000	BBPSC	11	117	95.0	58.8	2.6	39.5	96.5	133.7	228.8
73	80	1000	BBPSC	12	12	4.7	10.3	0.0	0.2	0.3	3.8	36.0
74	80	1000	BBPSC	1	251	82.0	62.0	0.0	27.3	76.9	120.6	294.7
74	80	1000	BBPSC	2	94	74.1	61.1	0.3	26.5	53.8	118.4	265.1
74	80	1000	BBPSC	3	117	81.6	64.0	0.2	24.2	77.5	113.6	298.5
74	80	1000	BBPSC	4	81	88.1	67.5	0.2	29.8	83.3	114.6	284.2
74	80	1000	BBPSC	5	120	82.3	60.5	0.4	37.5	76.1	118.8	255.6
74	80	1000	BBPSC	6	133	85.8	61.4	0.4	29.5	76.1	133.5	259.6
74	80	1000	BBPSC	7	96	81.5	57.9	0.3	31.3	75.7	117.9	215.6
74	80	1000	BBPSC	8	126	85.9	58.9	0.2	41.6	82.8	118.6	249.6
74	80	1000	BBPSC	9	98	79.3	62.8	0.8	25.7	69.8	121.6	248.0
74	80	1000	BBPSC	10	109	87.8	66.4	0.7	31.3	69.8	136.6	247.6
74	80	1000	BBPSC	11	122	84.0	62.8	0.5	29.8	76.3	121.4	265.4
74	80	1000	BBPSC	12	13	3.2	7.2	0.0	0.0	0.4	0.9	25.2
75	80	1000	BBPSC	1	241	58.7	52.6	0.0	17.4	46.9	82.2	245.4
75	80	1000	BBPSC	2	110	58.3	50.3	0.3	17.3	51.8	81.5	224.3
75	80	1000	BBPSC	3	106	60.5	45.6	0.0	24.4	53.5	85.1	234.2
75	80	1000	BBPSC	4	96	58.3	45.2	0.0	19.6	53.7	82.1	211.9
75	80	1000	BBPSC	5	118	61.9	44.9	0.7	31.7	53.9	83.5	258.4
75	80	1000	BBPSC	6	110	56.3	46.7	0.0	16.6	51.3	81.5	214.2
75	80	1000	BBPSC	7	110	56.2	42.0	0.3	29.4	49.6	80.0	197.4
75	80	1000	BBPSC	8	134	58.3	40.2	0.0	28.4	51.8	85.4	172.8
75	80	1000	BBPSC	9	108	56.2	40.5	0.0	21.1	52.9	82.9	180.3
75	80	1000	BBPSC	10	94	49.1	39.4	0.5	15.9	42.2	70.9	158.8
75	80	1000	BBPSC	11	103	46.7	40.2	0.8	16.2	38.2	73.1	159.2
75	80	1000	BBPSC	12	6	7.9	14.7	0.0	0.2	0.6	7.1	37.2
76	80	1200	BBPSC	1	303	217.2	146.6	0.0	118.0	192.8	269.2	836.4
76	80	1200	BBPSC	2	99	203.6	119.5	1.2	115.6	191.0	266.0	646.3
76	80	1200	BBPSC	3	131	218.7	143.7	0.3	130.8	189.1	288.9	818.7
76	80	1200	BBPSC	4	114	184.4	120.6	0.9	91.8	170.3	251.1	615.2

76	80	1200	BBPSC	5	118	198.6	136.9	0.2	109.1	170.1	251.1	697.8
76	80	1200	BBPSC	6	124	207.1	156.6	2.7	104.4	164.8	255.8	836.7
76	80	1200	BBPSC	7	109	175.6	130.3	2.9	68.6	155.2	243.2	742.7
76	80	1200	BBPSC	8	115	192.4	134.1	4.2	97.8	179.0	251.7	672.4
76	80	1200	BBPSC	9	117	184.3	140.5	5.4	85.4	165.4	229.7	903.1
76	80	1200	BBPSC	10	121	199.7	157.4	3.1	99.1	165.2	245.2	908.2
76	80	1200	BBPSC	11	124	162.7	119.0	13.9	61.4	159.6	228.2	646.3
76	80	1200	BBPSC	12	14	90.3	87.5	0.3	1.2	69.2	165.2	241.7
77	80	1200	BBPSC	1	278	219.0	162.6	0.0	110.9	192.6	290.7	1006.0
77	80	1200	BBPSC	2	105	191.6	139.8	0.2	86.5	178.6	261.9	790.4
77	80	1200	BBPSC	3	132	220.4	161.8	16.2	112.2	189.4	284.3	941.9
77	80	1200	BBPSC	4	91	223.4	192.6	0.3	96.6	186.9	297.4	995.3
77	80	1200	BBPSC	5	128	237.7	170.2	1.3	107.7	205.3	312.4	790.9
77	80	1200	BBPSC	6	147	225.8	183.7	0.5	106.6	184.8	277.7	872.1
77	80	1200	BBPSC	7	100	222.5	173.1	9.6	99.2	182.8	291.6	794.7
77	80	1200	BBPSC	8	136	201.0	133.9	0.5	104.4	183.9	274.4	677.5
77	80	1200	BBPSC	9	110	186.5	151.1	8.1	80.9	146.1	234.1	858.8
77	80	1200	BBPSC	10	116	194.3	149.2	9.6	100.2	171.0	224.8	784.3
77	80	1200	BBPSC	11	134	181.9	112.8	5.9	106.1	170.1	234.0	776.6
77	80	1200	BBPSC	12	19	96.1	78.3	0.0	24.5	87.2	158.6	233.2
78	80	1200	BBPSC	1	279	132.8	97.2	0.0	62.1	118.8	191.9	519.1
78	80	1200	BBPSC	2	128	123.4	93.1	0.5	57.4	110.0	175.3	513.5
78	80	1200	BBPSC	3	121	132.6	89.2	0.3	69.4	128.6	175.8	490.8
78	80	1200	BBPSC	4	109	126.0	90.3	0.0	52.2	113.9	180.4	458.9
78	80	1200	BBPSC	5	123	113.4	76.7	0.6	56.3	108.7	158.6	320.4
78	80	1200	BBPSC	6	122	101.4	78.5	1.0	38.6	80.9	141.6	340.2
78	80	1200	BBPSC	7	119	118.0	76.9	0.5	55.8	105.4	155.6	332.2
78	80	1200	BBPSC	8	144	120.0	83.7	0.4	54.9	108.7	167.6	403.5
78	80	1200	BBPSC	9	121	117.2	78.4	0.5	63.6	106.0	154.0	439.1
78	80	1200	BBPSC	10	103	107.4	65.6	2.1	59.9	99.1	148.8	281.6
78	80	1200	BBPSC	11	116	96.6	62.8	1.1	44.2	92.9	140.8	266.2
78	80	1200	BBPSC	12	7	12.5	28.2	0.0	0.1	0.2	5.4	76.1
79	80	1400	BBPSC	1	288	402.6	354.6	0.0	200.0	289.2	408.5	2165.3
79	80	1400	BBPSC	2	105	406.9	322.9	1.3	229.3	330.5	444.1	1690.0
79	80	1400	BBPSC	3	132	430.3	409.3	1.4	220.9	307.1	435.5	2161.3
79	80	1400	BBPSC	4	112	389.7	390.7	8.6	175.2	286.5	409.1	2167.2
79	80	1400	BBPSC	5	114	339.9	281.2	0.3	179.5	278.8	392.9	1902.2
79	80	1400	BBPSC	6	120	350.3	289.5	8.0	174.9	267.1	410.4	1497.9
79	80	1400	BBPSC	7	111	364.6	315.8	4.2	192.5	289.7	422.4	2009.8
79	80	1400	BBPSC	8	118	364.0	289.9	73.3	175.0	288.7	412.1	1909.2
79	80	1400	BBPSC	9	116	317.9	281.9	31.3	161.1	229.4	366.4	1735.9
79	80	1400	BBPSC	10	121	342.4	308.2	5.9	176.5	259.3	391.2	1904.6
79	80	1400	BBPSC	11	126	331.6	229.6	6.3	204.1	266.3	418.4	1470.3
79	80	1400	BBPSC	12	14	269.2	181.1	0.2	162.3	299.3	386.6	571.6
80	80	1400	BBPSC	1	276	330.6	296.2	0.0	160.6	256.7	378.9	1597.8
80	80	1400	BBPSC	2	112	317.3	238.6	0.7	167.3	272.9	457.4	1499.0
80	80	1400	BBPSC	3	136	326.4	281.9	0.7	153.5	262.5	414.9	1502.7
80	80	1400	BBPSC	4	95	314.9	267.6	1.4	160.0	225.4	402.7	1189.3
80	80	1400	BBPSC	5	126	379.9	330.2	4.3	166.6	283.8	541.1	1625.3
80	80	1400	BBPSC	6	143	333.6	294.2	0.8	146.1	249.0	409.6	1410.2
80	80	1400	BBPSC	7	100	376.3	340.6	10.3	189.0	287.9	443.5	1514.0
80	80	1400	BBPSC	8	138	315.9	243.2	0.4	178.2	251.7	410.7	1356.7
80	80	1400	BBPSC	9	111	301.7	268.7	3.1	153.7	214.2	361.6	1372.2
80	80	1400	BBPSC	10	121	293.1	234.4	9.7	129.6	231.2	361.9	1127.5
80	80	1400	BBPSC	11	134	314.1	227.6	12.5	174.1	257.2	401.6	1394.4
80	80	1400	BBPSC	12	19	160.9	124.0	0.0	56.6	154.9	250.8	455.2
81	80	1400	BBPSC	1	284	305.8	197.1	0.1	154.4	299.8	398.6	1169.0
81	80	1400	BBPSC	2	129	317.5	209.0	0.2	191.2	284.7	404.0	1178.4
81	80	1400	BBPSC	3	119	283.0	186.0	0.5	141.9	271.2	383.3	1107.2
81	80	1400	BBPSC	4	108	281.2	175.7	3.4	145.6	259.9	384.3	1094.0
81	80	1400	BBPSC	5	126	277.8	183.7	0.2	123.8	274.5	380.2	993.6

81	80	1400	BBPSC	6	123	277.2	154.6	2.0	156.3	268.9	374.1	670.2
81	80	1400	BBPSC	7	118	238.0	135.6	2.1	127.0	244.5	330.6	606.1
81	80	1400	BBPSC	8	145	287.0	187.8	0.4	149.3	261.3	366.6	1068.5
81	80	1400	BBPSC	9	125	266.9	170.1	13.8	141.3	256.3	356.8	1051.1
81	80	1400	BBPSC	10	102	252.1	151.0	3.7	141.3	222.6	343.1	726.4
81	80	1400	BBPSC	11	118	249.3	142.9	0.9	144.5	243.8	337.7	728.3
81	80	1400	BBPSC	12	7	84.7	114.2	0.2	7.8	64.5	92.8	326.8
82	80	1600	BBPSC	1	288	530.0	494.6	0.0	231.2	402.5	590.7	2496.1
82	80	1600	BBPSC	2	107	539.9	433.9	1.5	275.1	452.1	602.5	2502.4
82	80	1600	BBPSC	3	133	549.1	504.9	2.2	233.8	430.5	577.3	2492.3
82	80	1600	BBPSC	4	116	498.5	413.1	10.5	219.4	395.6	595.9	2050.5
82	80	1600	BBPSC	5	117	522.5	491.4	26.9	223.3	415.9	580.4	2482.1
82	80	1600	BBPSC	6	125	484.6	427.0	11.2	234.5	392.1	542.8	2465.2
82	80	1600	BBPSC	7	104	456.0	446.2	10.0	200.7	375.7	541.0	2436.3
82	80	1600	BBPSC	8	118	529.6	458.1	24.5	206.6	427.7	594.4	2219.2
82	80	1600	BBPSC	9	115	401.0	358.7	14.9	154.1	358.5	532.9	2057.6
82	80	1600	BBPSC	10	118	450.5	372.2	9.1	224.1	391.8	521.3	2124.6
82	80	1600	BBPSC	11	128	417.5	312.5	10.2	204.0	394.2	510.1	2015.7
82	80	1600	BBPSC	12	14	345.8	237.1	0.2	161.0	382.2	479.6	741.6
83	80	1600	BBPSC	1	268	483.7	426.5	0.0	227.2	370.0	573.5	2194.5
83	80	1600	BBPSC	2	112	493.6	432.3	0.6	230.2	417.6	586.0	2051.1
83	80	1600	BBPSC	3	130	489.8	427.5	0.8	223.9	383.3	583.3	2193.4
83	80	1600	BBPSC	4	95	482.7	453.8	5.1	188.8	347.1	560.7	2305.2
83	80	1600	BBPSC	5	115	551.6	503.1	6.5	204.2	410.6	672.7	2038.3
83	80	1600	BBPSC	6	136	470.8	449.3	1.2	187.4	358.5	533.9	2087.1
83	80	1600	BBPSC	7	101	578.5	461.2	5.0	273.3	468.8	675.7	2071.9
83	80	1600	BBPSC	8	131	494.4	481.5	1.5	195.2	383.2	537.9	2215.8
83	80	1600	BBPSC	9	106	445.5	412.8	8.3	207.2	327.4	491.3	1984.6
83	80	1600	BBPSC	10	117	487.3	489.3	9.3	178.1	331.7	548.0	2251.6
83	80	1600	BBPSC	11	129	488.7	481.5	16.6	208.3	346.7	537.3	2205.4
83	80	1600	BBPSC	12	19	292.3	220.7	0.0	64.3	338.4	468.6	629.9
84	80	1600	BBPSC	1	287	439.4	270.0	0.1	227.6	398.4	629.8	1183.2
84	80	1600	BBPSC	2	124	409.2	243.2	1.8	221.1	356.0	620.6	975.6
84	80	1600	BBPSC	3	120	417.5	247.4	17.5	202.9	437.3	600.7	1067.3
84	80	1600	BBPSC	4	112	428.2	288.2	4.2	224.4	361.4	620.1	1748.0
84	80	1600	BBPSC	5	126	384.3	238.2	0.8	202.9	345.3	566.7	1062.6
84	80	1600	BBPSC	6	122	434.9	290.7	29.4	237.6	364.9	587.7	1736.9
84	80	1600	BBPSC	7	121	355.8	226.6	2.7	164.4	327.2	518.0	1098.5
84	80	1600	BBPSC	8	143	416.4	260.0	2.6	215.3	375.5	597.3	1321.5
84	80	1600	BBPSC	9	123	397.6	239.0	21.2	188.1	348.4	577.1	1049.8
84	80	1600	BBPSC	10	105	385.4	260.1	6.1	190.6	336.3	578.7	1457.5
84	80	1600	BBPSC	11	113	388.2	234.0	19.0	215.9	361.0	549.6	1424.3
84	80	1600	BBPSC	12	7	227.7	215.9	0.2	58.3	209.3	336.8	594.0
85	100	400	BBPSC	1	5	8.3	14.5	0.0	0.2	0.3	7.2	33.7
85	100	400	BBPSC	2	77	37.3	36.2	0.0	4.7	26.6	59.1	130.3
85	100	400	BBPSC	3	84	38.1	32.5	0.0	13.1	32.8	55.0	127.6
85	100	400	BBPSC	4	70	38.2	34.1	0.0	7.5	32.5	57.7	139.4
85	100	400	BBPSC	5	76	31.5	30.8	0.0	1.5	22.9	50.6	124.3
85	100	400	BBPSC	6	83	31.5	33.6	0.0	1.8	25.3	47.0	146.8
85	100	400	BBPSC	7	76	33.5	35.6	0.0	6.9	23.9	48.8	174.4
85	100	400	BBPSC	8	82	30.4	31.0	0.0	3.6	21.4	47.2	163.4
85	100	400	BBPSC	9	88	24.7	26.5	0.0	3.2	18.8	41.7	140.7
85	100	400	BBPSC	10	82	36.0	34.0	0.0	3.2	32.5	54.6	128.9
85	100	400	BBPSC	11	80	35.3	35.0	0.2	8.5	27.2	52.5	157.7
85	100	400	BBPSC	12	5	0.2	0.1	0.0	0.2	0.3	0.3	0.4
86	100	400	BBPSC	2	68	38.3	37.3	0.0	2.9	27.1	61.1	133.3
86	100	400	BBPSC	3	73	40.6	35.9	0.0	2.7	38.9	60.2	136.3
86	100	400	BBPSC	4	62	40.9	36.5	0.0	6.6	40.4	56.4	186.2
86	100	400	BBPSC	5	75	34.8	31.8	0.0	5.8	25.9	50.9	134.1
86	100	400	BBPSC	6	84	27.1	26.9	0.0	2.3	20.9	42.5	117.4
86	100	400	BBPSC	7	102	33.6	32.7	0.0	5.3	26.6	54.8	122.2

86	100	400	BBPSC	8	72	31.3	35.4	0.0	3.5	23.7	45.0	171.6
86	100	400	BBPSC	9	85	32.9	37.8	0.0	1.1	22.8	49.0	178.7
86	100	400	BBPSC	10	67	35.7	33.8	0.0	6.1	31.1	47.0	135.2
86	100	400	BBPSC	11	83	31.1	34.2	0.0	5.7	19.6	45.3	138.3
86	100	400	BBPSC	12	6	4.2	6.3	0.0	0.2	1.1	5.5	16.0
87	100	400	BBPSC	1	3	35.8	30.2	4.7	21.1	37.5	51.3	65.1
87	100	400	BBPSC	2	63	36.0	36.2	0.0	3.8	30.9	52.9	142.0
87	100	400	BBPSC	3	70	28.4	29.9	0.0	2.5	17.2	48.5	111.1
87	100	400	BBPSC	4	81	24.0	26.2	0.0	1.4	13.4	42.1	96.1
87	100	400	BBPSC	5	74	32.4	36.2	0.0	3.2	22.6	51.6	197.1
87	100	400	BBPSC	6	78	26.6	25.6	0.0	3.6	22.0	37.5	117.4
87	100	400	BBPSC	7	77	30.6	26.1	0.0	5.9	28.1	47.0	102.9
87	100	400	BBPSC	8	83	25.1	25.6	0.0	2.3	16.2	41.7	111.1
87	100	400	BBPSC	9	89	25.7	23.8	0.0	4.4	21.3	42.6	110.2
87	100	400	BBPSC	10	80	23.9	24.0	0.0	1.3	17.3	42.1	95.8
87	100	400	BBPSC	11	73	20.4	18.8	0.0	2.6	17.2	34.9	69.8
87	100	400	BBPSC	12	4	0.1	0.1	0.0	0.0	0.1	0.2	0.2
88	100	600	BBPSC	1	7	67.6	56.6	0.2	14.7	95.9	105.5	136.7
88	100	600	BBPSC	2	104	38.7	38.7	0.0	5.4	24.8	62.7	147.2
88	100	600	BBPSC	3	102	41.9	38.4	0.0	7.1	32.3	72.4	166.0
88	100	600	BBPSC	4	94	49.6	44.6	0.1	13.4	37.5	77.7	195.3
88	100	600	BBPSC	5	92	42.4	41.4	0.0	4.6	31.3	62.9	174.5
88	100	600	BBPSC	6	98	44.8	41.0	0.3	9.2	37.3	70.7	171.4
88	100	600	BBPSC	7	96	53.5	45.3	0.0	17.9	43.8	76.8	188.2
88	100	600	BBPSC	8	102	41.5	36.4	0.0	11.4	36.0	63.7	147.9
88	100	600	BBPSC	9	99	40.8	37.3	0.0	9.3	31.7	58.4	153.7
88	100	600	BBPSC	10	101	41.3	41.4	0.0	9.2	31.2	61.1	188.0
88	100	600	BBPSC	11	97	40.5	36.9	0.0	12.3	33.0	49.9	159.5
88	100	600	BBPSC	12	8	0.6	0.8	0.0	0.3	0.3	0.8	2.4
89	100	600	BBPSC	1	1	0.0	N/A	0.0	0.0	0.0	0.0	0.0
89	100	600	BBPSC	2	86	50.1	43.9	0.0	17.6	39.4	73.1	208.5
89	100	600	BBPSC	3	94	47.9	47.1	0.0	6.2	38.2	74.5	201.1
89	100	600	BBPSC	4	87	52.1	46.2	0.0	12.2	40.8	79.7	192.6
89	100	600	BBPSC	5	89	44.7	44.4	0.0	11.2	34.5	67.8	213.2
89	100	600	BBPSC	6	105	39.4	37.8	0.0	5.9	30.6	62.1	172.7
89	100	600	BBPSC	7	127	43.6	44.9	0.0	9.5	34.2	60.0	203.5
89	100	600	BBPSC	8	84	49.6	51.3	0.0	11.9	32.2	69.1	231.4
89	100	600	BBPSC	9	105	45.5	42.5	0.0	7.3	34.9	67.8	201.8
89	100	600	BBPSC	10	87	43.7	37.4	0.0	12.4	36.1	65.6	185.0
89	100	600	BBPSC	11	112	41.7	37.2	0.0	16.5	30.2	55.4	181.4
89	100	600	BBPSC	12	8	1.1	2.3	0.0	0.0	0.3	0.6	6.8
90	100	600	BBPSC	1	3	13.6	16.7	3.1	3.9	4.7	18.8	32.9
90	100	600	BBPSC	2	80	34.2	36.2	0.0	4.1	26.9	49.8	167.2
90	100	600	BBPSC	3	83	36.3	31.8	0.0	9.0	33.5	54.1	178.3
90	100	600	BBPSC	4	102	31.4	29.6	0.0	3.3	27.9	51.3	121.1
90	100	600	BBPSC	5	92	35.5	32.0	0.0	5.5	31.6	58.6	138.1
90	100	600	BBPSC	6	92	34.2	28.9	0.0	4.2	33.9	52.8	114.8
90	100	600	BBPSC	7	100	33.3	27.7	0.0	5.8	32.7	51.5	104.0
90	100	600	BBPSC	8	99	38.4	27.8	0.0	15.4	38.7	61.0	105.7
90	100	600	BBPSC	9	114	34.2	28.9	0.0	8.4	30.3	49.9	134.5
90	100	600	BBPSC	10	97	33.4	34.1	0.2	4.6	21.9	51.8	149.0
90	100	600	BBPSC	11	90	31.8	28.4	0.1	7.8	24.5	52.5	130.9
90	100	600	BBPSC	12	5	0.2	0.2	0.0	0.0	0.2	0.3	0.5
91	100	800	BBPSC	1	7	49.6	49.8	0.3	7.9	27.0	95.8	112.5
91	100	800	BBPSC	2	126	59.6	49.4	0.0	14.6	58.2	89.4	268.4
91	100	800	BBPSC	3	119	62.9	54.3	0.2	15.1	56.6	97.0	214.1
91	100	800	BBPSC	4	114	71.9	59.1	0.1	19.4	65.3	104.4	254.3
91	100	800	BBPSC	5	115	65.9	56.8	0.0	23.2	52.4	101.4	332.4
91	100	800	BBPSC	6	118	67.2	55.2	0.2	23.7	59.6	102.6	240.4
91	100	800	BBPSC	7	128	68.4	53.1	0.4	25.0	53.8	102.9	198.8
91	100	800	BBPSC	8	114	65.7	52.9	0.0	22.3	54.0	107.7	220.4

91	100	800	BBPSC	9	116	62.7	48.8	0.3	23.1	52.6	92.8	203.4
91	100	800	BBPSC	10	117	65.7	52.6	0.0	26.4	49.4	95.0	220.7
91	100	800	BBPSC	11	124	61.2	51.0	0.5	22.6	50.0	81.7	269.7
91	100	800	BBPSC	12	11	1.5	2.7	0.0	0.1	0.3	1.5	8.8
92	100	800	BBPSC	1	2	31.6	16.7	19.8	25.7	31.6	37.5	43.4
92	100	800	BBPSC	2	101	65.8	54.8	0.0	18.6	55.2	106.2	220.8
92	100	800	BBPSC	3	113	59.9	53.1	0.0	15.3	49.9	90.2	281.7
92	100	800	BBPSC	4	106	62.4	50.6	0.1	18.5	51.7	93.0	239.3
92	100	800	BBPSC	5	110	62.0	58.6	0.0	18.0	49.3	89.0	252.9
92	100	800	BBPSC	6	120	63.6	55.3	0.1	19.5	54.1	89.9	271.4
92	100	800	BBPSC	7	142	64.0	48.3	0.2	22.1	58.0	96.4	192.3
92	100	800	BBPSC	8	105	64.2	53.5	0.3	20.1	55.7	92.5	233.1
92	100	800	BBPSC	9	120	59.7	50.3	0.1	13.0	48.6	101.5	227.6
92	100	800	BBPSC	10	104	60.0	47.2	0.3	23.3	47.1	81.0	215.6
92	100	800	BBPSC	11	135	66.5	57.6	0.5	20.5	50.7	103.4	263.4
92	100	800	BBPSC	12	9	0.9	1.3	0.0	0.0	0.5	0.6	3.4
93	100	800	BBPSC	1	5	48.6	51.2	2.5	15.9	28.7	66.0	129.8
93	100	800	BBPSC	2	95	39.2	33.4	0.0	10.8	36.4	57.1	160.4
93	100	800	BBPSC	3	100	44.0	37.2	0.0	9.8	40.9	68.4	164.4
93	100	800	BBPSC	4	119	43.1	34.3	0.0	15.8	41.0	65.3	148.8
93	100	800	BBPSC	5	106	41.6	30.8	0.0	14.1	43.4	63.6	125.4
93	100	800	BBPSC	6	115	42.6	29.2	0.0	20.6	40.1	63.0	115.8
93	100	800	BBPSC	7	117	36.4	34.5	0.0	7.3	27.5	51.6	160.9
93	100	800	BBPSC	8	119	41.1	32.2	0.0	15.3	38.2	60.8	173.2
93	100	800	BBPSC	9	135	46.3	34.9	0.7	23.9	39.3	60.5	157.0
93	100	800	BBPSC	10	112	38.2	33.9	0.0	9.3	30.5	57.9	150.0
93	100	800	BBPSC	11	113	34.0	28.3	0.4	11.5	26.4	46.2	126.6
93	100	800	BBPSC	12	6	2.5	4.3	0.0	0.0	0.9	2.0	11.0
94	100	1000	BBPSC	1	9	83.9	53.8	0.3	34.2	110.6	125.3	133.8
94	100	1000	BBPSC	2	138	96.8	65.7	0.1	40.1	95.8	140.9	279.0
94	100	1000	BBPSC	3	135	105.2	75.6	0.0	41.2	97.4	157.6	327.2
94	100	1000	BBPSC	4	136	105.5	68.6	0.1	45.7	109.3	148.5	312.3
94	100	1000	BBPSC	5	140	95.1	65.8	0.3	43.5	93.5	132.1	337.1
94	100	1000	BBPSC	6	139	96.9	58.7	0.3	54.7	93.1	141.5	243.0
94	100	1000	BBPSC	7	147	100.5	67.2	0.3	38.9	103.0	139.6	337.7
94	100	1000	BBPSC	8	129	92.5	65.1	0.0	37.0	84.4	143.3	288.7
94	100	1000	BBPSC	9	132	89.5	61.4	0.2	38.0	87.7	129.0	259.1
94	100	1000	BBPSC	10	137	97.0	65.0	2.0	41.5	93.1	134.0	264.1
94	100	1000	BBPSC	11	150	96.0	58.2	2.6	40.6	102.0	132.7	240.8
94	100	1000	BBPSC	12	12	3.8	8.6	0.0	0.2	0.3	2.6	30.4
95	100	1000	BBPSC	1	2	33.3	23.7	16.5	24.9	33.3	41.7	50.1
95	100	1000	BBPSC	2	125	83.5	60.4	0.0	32.5	74.9	135.8	227.6
95	100	1000	BBPSC	3	124	83.5	62.0	0.0	34.3	65.3	117.6	274.7
95	100	1000	BBPSC	4	126	72.5	58.6	0.3	21.8	55.6	115.3	263.1
95	100	1000	BBPSC	5	132	81.8	65.0	0.1	28.8	76.7	107.6	303.2
95	100	1000	BBPSC	6	133	85.9	62.9	0.4	34.6	81.2	122.2	264.2
95	100	1000	BBPSC	7	160	80.9	59.2	0.3	35.0	68.2	128.3	253.6
95	100	1000	BBPSC	8	129	89.7	57.5	0.1	45.0	85.2	123.0	224.0
95	100	1000	BBPSC	9	148	89.7	61.1	0.3	41.1	83.1	123.9	306.0
95	100	1000	BBPSC	10	120	85.3	61.8	0.6	34.0	71.4	119.1	245.8
95	100	1000	BBPSC	11	153	84.7	64.6	0.7	29.4	72.8	126.2	283.4
95	100	1000	BBPSC	12	13	4.6	12.2	0.0	0.0	0.5	0.6	44.1
96	100	1000	BBPSC	1	6	56.3	62.1	0.3	5.2	39.1	95.7	151.1
96	100	1000	BBPSC	2	109	66.9	54.6	0.0	23.1	57.2	94.5	218.8
96	100	1000	BBPSC	3	124	63.0	42.5	0.0	35.6	59.5	86.4	192.4
96	100	1000	BBPSC	4	142	62.2	45.3	0.1	26.0	58.3	86.7	221.3
96	100	1000	BBPSC	5	129	64.9	51.1	0.2	27.2	52.8	93.9	299.1
96	100	1000	BBPSC	6	128	65.3	43.2	0.3	32.4	60.4	93.4	204.6
96	100	1000	BBPSC	7	143	60.7	48.6	0.3	23.5	52.0	85.6	255.4
96	100	1000	BBPSC	8	136	60.3	44.3	0.3	30.2	58.6	81.0	234.1
96	100	1000	BBPSC	9	156	60.9	45.8	0.0	27.2	54.1	87.3	212.6

96	100	1000	BBPSC	10	124	61.8	46.0	0.1	26.6	57.4	80.8	198.8
96	100	1000	BBPSC	11	129	51.3	41.6	0.3	16.0	45.9	76.7	208.5
96	100	1000	BBPSC	12	6	1.9	3.8	0.0	0.2	0.3	0.8	9.6
97	100	1200	BBPSC	1	9	183.1	106.6	68.6	93.6	172.4	199.2	391.6
97	100	1200	BBPSC	2	146	202.2	114.8	0.0	132.7	182.3	279.8	607.3
97	100	1200	BBPSC	3	145	227.6	165.5	0.8	106.9	195.7	319.0	786.4
97	100	1200	BBPSC	4	149	220.2	135.8	16.0	135.9	189.8	290.5	697.3
97	100	1200	BBPSC	5	151	214.4	145.6	0.3	122.3	194.5	291.3	678.6
97	100	1200	BBPSC	6	146	213.5	138.2	0.7	123.0	196.0	286.8	708.3
97	100	1200	BBPSC	7	154	208.6	137.7	2.4	113.6	183.2	271.8	604.9
97	100	1200	BBPSC	8	140	204.4	138.6	1.2	109.0	187.0	266.4	685.2
97	100	1200	BBPSC	9	140	181.3	136.0	3.8	87.9	147.7	230.2	628.7
97	100	1200	BBPSC	10	142	194.0	142.8	3.8	92.1	168.7	240.9	625.5
97	100	1200	BBPSC	11	162	171.3	124.0	3.2	79.8	151.5	220.8	637.0
97	100	1200	BBPSC	12	14	91.2	82.3	0.3	5.0	75.2	167.3	209.2
98	100	1200	BBPSC	1	3	198.9	76.0	114.0	168.2	222.4	241.4	260.4
98	100	1200	BBPSC	2	132	200.5	137.4	0.0	106.3	186.1	271.1	737.8
98	100	1200	BBPSC	3	140	205.6	156.3	0.0	102.1	198.2	265.5	1003.6
98	100	1200	BBPSC	4	140	195.1	131.5	0.2	106.8	189.9	253.8	797.3
98	100	1200	BBPSC	5	150	207.7	168.5	0.4	98.0	176.8	269.5	939.0
98	100	1200	BBPSC	6	140	207.1	159.8	0.3	102.3	178.4	275.9	992.4
98	100	1200	BBPSC	7	178	210.3	166.8	0.5	95.9	177.4	258.9	854.1
98	100	1200	BBPSC	8	138	202.8	150.3	1.7	93.7	175.8	271.1	778.7
98	100	1200	BBPSC	9	162	182.6	125.2	0.5	93.8	150.7	246.8	706.7
98	100	1200	BBPSC	10	137	183.8	154.3	8.1	83.9	162.2	236.6	841.3
98	100	1200	BBPSC	11	169	182.4	131.9	4.5	91.4	153.4	243.8	723.0
98	100	1200	BBPSC	12	19	82.6	70.4	0.0	15.7	90.2	124.6	202.3
99	100	1200	BBPSC	1	7	81.6	75.9	0.3	43.0	53.9	98.8	233.1
99	100	1200	BBPSC	2	123	114.4	72.4	0.0	62.6	106.0	160.1	301.1
99	100	1200	BBPSC	3	144	108.5	68.0	0.1	58.2	102.8	145.1	310.1
99	100	1200	BBPSC	4	166	101.8	72.5	0.3	39.4	99.6	143.1	357.4
99	100	1200	BBPSC	5	151	106.0	72.5	0.0	41.1	105.6	158.5	311.4
99	100	1200	BBPSC	6	141	100.7	63.6	0.9	54.3	100.6	134.4	265.0
99	100	1200	BBPSC	7	160	93.4	67.3	0.3	37.1	83.8	137.1	276.6
99	100	1200	BBPSC	8	150	96.8	66.6	1.4	46.2	84.9	132.6	312.8
99	100	1200	BBPSC	9	168	101.5	64.7	0.4	49.9	98.3	143.0	275.3
99	100	1200	BBPSC	10	135	96.1	67.5	1.2	40.0	84.9	134.1	310.1
99	100	1200	BBPSC	11	144	84.6	53.2	1.1	45.2	76.7	121.5	249.0
99	100	1200	BBPSC	12	7	1.7	3.1	0.0	0.1	0.2	1.6	8.5
100	100	1400	BBPSC	1	8	306.7	112.2	186.7	234.0	281.0	357.5	497.0
100	100	1400	BBPSC	2	139	431.2	366.6	0.0	205.8	313.2	478.3	2106.3
100	100	1400	BBPSC	3	134	414.3	353.1	0.7	197.1	319.7	467.8	1850.7
100	100	1400	BBPSC	4	156	453.2	367.1	2.3	223.8	369.2	515.7	2102.3
100	100	1400	BBPSC	5	150	395.0	334.7	1.4	185.3	312.1	488.3	2074.7
100	100	1400	BBPSC	6	148	403.4	378.9	2.4	171.9	309.1	452.6	2110.3
100	100	1400	BBPSC	7	152	338.3	265.5	4.9	163.3	317.6	417.8	1899.3
100	100	1400	BBPSC	8	141	420.8	367.8	4.2	198.7	348.4	486.3	2070.1
100	100	1400	BBPSC	9	143	355.5	277.7	24.2	170.0	306.7	436.6	1551.0
100	100	1400	BBPSC	10	141	376.6	303.6	5.9	163.1	306.8	433.9	1433.7
100	100	1400	BBPSC	11	157	316.7	234.3	12.2	166.9	297.4	402.2	1498.5
100	100	1400	BBPSC	12	14	268.3	181.8	0.2	148.9	293.2	402.9	552.9
101	100	1400	BBPSC	1	3	347.2	99.7	257.9	293.3	328.8	391.8	454.8
101	100	1400	BBPSC	2	133	352.3	293.9	1.8	172.2	285.6	406.7	1603.5
101	100	1400	BBPSC	3	142	331.1	291.2	0.0	157.7	275.5	378.8	1661.7
101	100	1400	BBPSC	4	148	305.8	205.4	0.7	186.2	275.5	399.5	1095.2
101	100	1400	BBPSC	5	157	341.8	301.4	0.7	163.6	278.6	415.5	1729.5
101	100	1400	BBPSC	6	147	374.0	326.0	4.3	171.0	275.6	439.4	1689.9
101	100	1400	BBPSC	7	175	340.0	291.7	0.8	168.1	261.7	423.0	1297.0
101	100	1400	BBPSC	8	139	365.0	300.6	1.7	196.7	287.9	428.6	1663.1
101	100	1400	BBPSC	9	165	330.6	260.3	0.4	178.0	258.7	424.5	1379.4
101	100	1400	BBPSC	10	134	285.7	249.2	9.7	116.3	233.6	350.9	1298.6

101	100	1400	BBPSC	11	168	342.7	260.1	12.5	181.0	257.1	441.0	1227.4
101	100	1400	BBPSC	12	19	172.7	123.9	0.0	57.5	188.2	276.8	340.8
102	100	1400	BBPSC	1	7	175.2	185.3	0.2	29.2	98.1	288.7	492.6
102	100	1400	BBPSC	2	125	281.5	201.7	0.6	141.8	255.3	376.6	1054.4
102	100	1400	BBPSC	3	154	264.9	169.5	0.1	125.7	250.3	355.2	987.1
102	100	1400	BBPSC	4	173	273.5	189.1	0.3	132.9	245.9	369.0	1063.9
102	100	1400	BBPSC	5	150	237.4	157.5	3.3	121.1	218.2	315.1	904.3
102	100	1400	BBPSC	6	149	255.8	177.4	0.2	119.5	239.0	339.8	990.6
102	100	1400	BBPSC	7	164	238.6	152.7	0.8	134.4	196.2	320.2	691.3
102	100	1400	BBPSC	8	159	222.2	137.5	2.4	118.5	195.6	305.2	876.6
102	100	1400	BBPSC	9	173	269.1	174.6	0.7	139.1	252.6	386.8	865.5
102	100	1400	BBPSC	10	139	220.4	136.7	3.8	117.8	190.8	299.5	827.4
102	100	1400	BBPSC	11	147	218.0	138.7	0.9	120.1	202.8	286.1	616.1
102	100	1400	BBPSC	12	7	73.7	76.0	0.2	21.5	45.6	107.2	213.0
103	100	1600	BBPSC	1	9	390.5	193.9	166.2	296.0	308.5	462.1	710.1
103	100	1600	BBPSC	2	139	579.1	541.0	0.0	253.9	422.0	613.2	2503.9
103	100	1600	BBPSC	3	131	505.4	437.0	0.8	201.9	368.3	646.4	2537.5
103	100	1600	BBPSC	4	153	573.5	498.2	18.6	270.5	425.7	646.6	2499.0
103	100	1600	BBPSC	5	149	487.6	414.6	2.2	217.8	378.2	604.1	2493.8
103	100	1600	BBPSC	6	144	506.0	471.8	10.5	207.5	347.9	611.9	2530.8
103	100	1600	BBPSC	7	157	489.8	440.9	3.2	216.4	390.0	607.0	2510.6
103	100	1600	BBPSC	8	140	529.3	467.9	10.0	211.3	413.9	629.7	2496.0
103	100	1600	BBPSC	9	143	429.8	349.9	23.5	181.2	340.8	576.5	1924.3
103	100	1600	BBPSC	10	131	424.8	348.7	0.4	196.1	366.0	572.3	1974.7
103	100	1600	BBPSC	11	157	420.4	309.9	14.2	224.7	354.4	552.7	1978.6
103	100	1600	BBPSC	12	14	373.5	245.6	0.2	190.1	437.7	504.3	708.8
104	100	1600	BBPSC	1	3	391.2	219.8	214.0	268.2	322.4	479.8	637.2
104	100	1600	BBPSC	2	130	467.2	438.3	0.0	205.7	326.9	613.1	2043.8
104	100	1600	BBPSC	3	138	419.8	346.7	0.0	184.0	332.4	598.2	1857.8
104	100	1600	BBPSC	4	151	469.7	432.7	0.6	186.8	382.9	594.9	2048.2
104	100	1600	BBPSC	5	155	439.5	366.1	0.9	162.3	335.5	631.6	1929.0
104	100	1600	BBPSC	6	143	483.0	431.5	6.5	188.1	357.3	601.9	2025.0
104	100	1600	BBPSC	7	169	467.8	445.3	1.2	158.4	303.7	604.9	2052.1
104	100	1600	BBPSC	8	140	481.0	408.6	1.7	173.4	418.4	647.3	1762.0
104	100	1600	BBPSC	9	162	474.1	443.5	1.5	167.9	344.4	585.2	1983.6
104	100	1600	BBPSC	10	138	413.5	423.6	9.3	169.0	259.6	508.8	1992.0
104	100	1600	BBPSC	11	166	483.6	468.2	16.6	187.9	319.2	545.6	2170.4
104	100	1600	BBPSC	12	19	289.3	241.9	0.0	97.6	239.6	468.7	701.2
105	100	1600	BBPSC	1	7	384.3	353.0	0.2	133.6	308.1	549.8	1014.9
105	100	1600	BBPSC	2	127	449.7	296.5	2.4	210.8	431.2	586.5	1387.1
105	100	1600	BBPSC	3	155	425.6	274.1	0.1	221.9	386.2	568.6	1661.2
105	100	1600	BBPSC	4	167	428.2	282.1	1.8	239.8	378.8	579.3	1653.6
105	100	1600	BBPSC	5	152	388.4	251.0	4.2	205.5	330.7	540.3	1145.1
105	100	1600	BBPSC	6	152	416.5	274.4	0.8	215.1	374.1	585.6	1564.0
105	100	1600	BBPSC	7	161	408.8	285.0	24.0	214.4	334.7	564.7	1548.0
105	100	1600	BBPSC	8	157	369.9	226.7	2.7	187.4	347.9	541.0	1185.5
105	100	1600	BBPSC	9	178	431.1	318.8	1.8	207.8	347.9	597.7	1690.3
105	100	1600	BBPSC	10	138	357.3	224.2	6.0	185.1	329.6	530.1	1433.2
105	100	1600	BBPSC	11	150	383.3	252.8	19.0	189.9	340.8	554.4	1425.7
105	100	1600	BBPSC	12	7	204.4	200.1	0.2	58.3	177.0	320.9	495.0
106	20	400	NBBPSC	1	642	23.3	20.0	0.0	3.5	20.9	37.9	90.3
106	20	400	NBBPSC	2	9	26.6	15.0	2.4	15.1	23.8	40.7	44.7
106	20	400	NBBPSC	3	25	24.1	24.8	0.0	3.0	19.3	41.5	93.2
106	20	400	NBBPSC	4	12	15.8	11.1	0.4	7.4	17.6	22.6	32.6
106	20	400	NBBPSC	5	14	27.7	18.9	3.5	7.6	33.8	44.3	52.0
106	20	400	NBBPSC	6	21	34.8	21.8	0.6	15.7	33.9	51.2	73.0
106	20	400	NBBPSC	7	19	28.0	21.1	0.9	11.5	28.2	43.3	73.9
106	20	400	NBBPSC	8	14	22.3	18.3	0.4	6.3	21.9	37.4	46.3
106	20	400	NBBPSC	9	21	23.2	18.9	1.5	5.2	21.7	39.5	63.9
106	20	400	NBBPSC	10	10	25.5	17.0	2.4	15.1	27.0	34.4	54.3
106	20	400	NBBPSC	11	17	24.4	16.8	0.9	8.4	25.7	36.1	50.8

106	20	400	NBBPSC	12	5	13.2	22.6	0.0	0.2	0.4	12.9	52.4
107	20	400	NBBPSC	1	623	23.9	20.5	0.0	3.9	21.8	38.1	99.7
107	20	400	NBBPSC	2	6	36.6	19.7	14.8	26.9	30.5	43.3	70.8
107	20	400	NBBPSC	3	12	26.4	24.6	0.9	2.3	23.0	47.2	63.2
107	20	400	NBBPSC	4	17	31.1	13.9	6.9	23.5	29.6	36.4	58.5
107	20	400	NBBPSC	5	19	26.3	19.7	0.4	8.9	26.4	41.2	62.0
107	20	400	NBBPSC	6	10	35.8	19.3	1.7	25.2	35.2	45.1	64.3
107	20	400	NBBPSC	7	12	19.9	13.4	0.5	10.9	18.3	24.8	49.8
107	20	400	NBBPSC	8	25	27.8	23.1	0.5	11.5	20.3	42.6	73.2
107	20	400	NBBPSC	9	10	15.0	14.1	1.1	3.8	11.6	23.0	44.6
107	20	400	NBBPSC	10	21	29.9	24.3	0.7	15.5	18.2	42.2	102.6
107	20	400	NBBPSC	11	17	31.4	25.6	0.4	6.0	25.7	48.2	75.2
107	20	400	NBBPSC	12	6	25.8	11.5	12.5	16.7	25.3	34.4	40.5
108	20	400	NBBPSC	1	619	23.7	19.4	0.0	4.8	21.8	37.0	104.2
108	20	400	NBBPSC	2	15	23.6	28.7	0.0	0.4	5.6	45.7	87.6
108	20	400	NBBPSC	3	15	18.5	18.5	0.3	2.6	18.1	25.5	66.3
108	20	400	NBBPSC	4	18	24.1	18.3	0.4	9.3	20.6	40.1	58.4
108	20	400	NBBPSC	5	13	28.9	21.8	0.0	2.1	32.4	47.0	61.6
108	20	400	NBBPSC	6	14	27.2	20.4	0.4	7.9	27.3	39.7	58.6
108	20	400	NBBPSC	7	20	22.1	20.5	0.0	4.0	14.1	40.0	63.9
108	20	400	NBBPSC	8	13	32.7	25.5	0.8	9.4	37.3	48.7	73.7
108	20	400	NBBPSC	9	15	29.7	25.8	0.0	16.6	20.4	40.2	87.3
108	20	400	NBBPSC	10	19	23.6	19.0	1.2	9.3	22.2	31.6	70.6
108	20	400	NBBPSC	11	12	18.7	17.3	1.0	5.1	15.0	25.3	54.2
108	20	400	NBBPSC	12	4	8.4	5.9	4.9	5.1	5.8	9.1	17.2
109	20	600	NBBPSC	1	812	29.8	23.2	0.0	8.6	28.2	46.3	106.1
109	20	600	NBBPSC	2	10	32.5	28.3	0.2	11.7	29.9	40.1	82.7
109	20	600	NBBPSC	3	30	27.9	25.6	1.4	5.7	23.7	41.9	121.4
109	20	600	NBBPSC	4	17	20.5	18.8	1.0	2.4	16.5	22.6	57.2
109	20	600	NBBPSC	5	20	33.5	23.8	0.0	7.3	36.0	52.3	72.4
109	20	600	NBBPSC	6	26	31.7	23.9	3.1	12.6	27.7	50.1	94.1
109	20	600	NBBPSC	7	23	29.6	28.6	0.6	7.4	19.1	39.7	111.9
109	20	600	NBBPSC	8	16	36.3	25.5	1.6	16.9	31.3	51.9	89.7
109	20	600	NBBPSC	9	25	33.5	24.1	1.4	18.6	28.3	45.5	97.6
109	20	600	NBBPSC	10	16	37.2	19.0	2.1	19.3	40.6	48.0	67.5
109	20	600	NBBPSC	11	21	39.1	20.8	4.7	23.1	35.4	53.1	83.1
109	20	600	NBBPSC	12	8	27.2	21.2	1.0	14.9	28.9	34.2	66.0
110	20	600	NBBPSC	1	779	28.8	22.5	0.0	8.3	26.4	44.6	102.2
110	20	600	NBBPSC	2	8	34.6	22.7	4.2	18.5	30.0	54.1	69.7
110	20	600	NBBPSC	3	19	27.6	21.3	0.4	8.2	28.9	38.7	72.0
110	20	600	NBBPSC	4	23	36.2	26.2	1.2	13.6	35.2	55.1	97.7
110	20	600	NBBPSC	5	22	35.4	21.7	0.2	23.0	33.2	51.3	73.6
110	20	600	NBBPSC	6	12	40.9	27.6	4.7	22.9	33.2	57.1	88.0
110	20	600	NBBPSC	7	20	30.2	26.9	0.6	3.1	32.2	42.6	96.9
110	20	600	NBBPSC	8	31	31.4	26.4	1.5	8.8	27.8	50.9	113.4
110	20	600	NBBPSC	9	21	34.2	29.2	0.5	7.9	29.3	53.3	90.9
110	20	600	NBBPSC	10	26	40.5	23.4	1.0	26.7	41.7	56.2	86.4
110	20	600	NBBPSC	11	18	36.4	25.6	1.9	14.9	35.6	55.7	78.6
110	20	600	NBBPSC	12	9	21.7	15.1	0.3	8.1	22.2	35.4	42.9
111	20	600	NBBPSC	1	770	29.4	23.5	0.0	9.4	25.9	43.9	106.4
111	20	600	NBBPSC	2	18	25.8	28.9	0.1	1.8	15.3	45.4	86.6
111	20	600	NBBPSC	3	20	21.9	21.5	0.0	3.7	17.5	32.1	78.0
111	20	600	NBBPSC	4	21	34.9	24.6	0.4	15.5	34.5	45.4	88.1
111	20	600	NBBPSC	5	15	29.7	26.3	0.5	5.7	26.3	47.2	80.6
111	20	600	NBBPSC	6	16	32.9	27.8	0.5	3.1	30.9	51.6	93.1
111	20	600	NBBPSC	7	23	30.5	25.1	3.2	12.3	20.4	46.7	93.5
111	20	600	NBBPSC	8	16	26.5	22.0	0.0	6.0	19.2	45.9	64.9
111	20	600	NBBPSC	9	17	22.0	22.6	0.4	3.8	20.6	28.4	93.2
111	20	600	NBBPSC	10	24	36.2	26.0	1.0	19.9	30.4	48.3	118.3
111	20	600	NBBPSC	11	18	37.4	33.4	1.1	8.3	28.8	68.4	92.2
111	20	600	NBBPSC	12	6	18.8	19.5	1.0	5.4	15.4	22.5	54.1

112	20	800	NBBPSC	1	975	37.4	27.7	0.0	15.0	33.8	56.1	143.8
112	20	800	NBBPSC	2	13	42.2	22.7	8.7	22.9	44.3	51.8	93.1
112	20	800	NBBPSC	3	37	45.4	29.0	0.0	19.2	55.3	63.2	101.0
112	20	800	NBBPSC	4	19	35.7	27.5	1.5	14.4	31.3	50.8	85.7
112	20	800	NBBPSC	5	22	53.4	33.2	4.7	31.5	45.7	70.4	128.6
112	20	800	NBBPSC	6	29	37.8	23.0	3.3	15.9	40.6	57.3	75.1
112	20	800	NBBPSC	7	28	36.7	30.9	0.8	9.6	31.3	53.6	110.9
112	20	800	NBBPSC	8	20	37.1	24.3	9.1	22.7	32.5	46.4	100.7
112	20	800	NBBPSC	9	32	38.3	21.0	2.1	22.6	35.4	49.4	82.3
112	20	800	NBBPSC	10	28	41.8	28.4	2.3	20.8	40.1	53.5	113.1
112	20	800	NBBPSC	11	24	34.0	21.4	0.7	18.0	29.9	49.4	79.9
112	20	800	NBBPSC	12	11	29.2	30.6	0.2	1.3	32.8	48.5	90.9
113	20	800	NBBPSC	1	916	31.3	22.4	0.0	13.0	29.7	45.8	131.5
113	20	800	NBBPSC	2	12	47.7	18.1	26.7	34.1	42.4	58.5	87.0
113	20	800	NBBPSC	3	23	31.9	23.4	0.3	14.7	24.2	48.8	83.2
113	20	800	NBBPSC	4	27	42.8	17.1	9.1	32.7	46.9	51.6	77.8
113	20	800	NBBPSC	5	24	33.7	20.6	0.5	23.0	37.5	46.4	75.1
113	20	800	NBBPSC	6	16	36.9	22.2	5.3	20.9	37.0	47.0	82.0
113	20	800	NBBPSC	7	28	35.8	23.8	0.7	16.9	35.4	43.8	97.0
113	20	800	NBBPSC	8	33	34.1	20.0	0.2	16.4	33.7	46.9	80.5
113	20	800	NBBPSC	9	25	37.7	30.5	1.0	13.9	28.5	54.9	119.8
113	20	800	NBBPSC	10	32	48.3	30.5	0.8	23.3	46.4	67.5	120.9
113	20	800	NBBPSC	11	20	37.7	27.5	3.6	13.4	38.0	48.9	114.1
113	20	800	NBBPSC	12	10	25.0	16.8	0.1	12.8	27.3	35.9	48.9
114	20	800	NBBPSC	1	913	37.1	28.7	0.0	14.6	33.4	52.8	142.0
114	20	800	NBBPSC	2	20	44.2	39.4	0.5	12.8	29.8	68.4	131.8
114	20	800	NBBPSC	3	26	35.6	31.1	0.3	9.5	25.9	59.9	118.0
114	20	800	NBBPSC	4	23	34.3	31.3	0.0	14.0	22.5	48.4	148.1
114	20	800	NBBPSC	5	17	40.8	37.8	0.9	11.3	27.1	57.6	130.2
114	20	800	NBBPSC	6	18	40.8	26.1	5.0	16.7	38.7	54.2	87.6
114	20	800	NBBPSC	7	26	42.7	34.1	2.4	18.0	38.2	47.4	143.0
114	20	800	NBBPSC	8	19	28.1	29.2	0.0	4.7	17.9	41.2	104.9
114	20	800	NBBPSC	9	24	35.8	28.2	0.4	18.4	29.4	49.8	108.9
114	20	800	NBBPSC	10	25	44.4	24.8	3.8	24.4	42.3	53.9	111.4
114	20	800	NBBPSC	11	26	35.3	29.7	1.0	10.8	32.8	51.7	125.3
114	20	800	NBBPSC	12	7	28.4	21.2	0.0	14.6	25.4	43.7	56.8
115	20	1000	NBBPSC	1	1131	61.6	38.0	0.0	29.9	60.4	89.7	194.9
115	20	1000	NBBPSC	2	15	58.6	43.2	3.5	25.7	47.0	82.9	152.1
115	20	1000	NBBPSC	3	40	60.7	38.5	0.4	28.4	58.6	87.2	142.4
115	20	1000	NBBPSC	4	23	57.4	25.8	17.3	35.9	52.3	77.2	103.1
115	20	1000	NBBPSC	5	26	89.4	30.3	38.1	67.3	87.9	114.1	150.4
115	20	1000	NBBPSC	6	36	67.7	40.8	1.8	33.4	69.4	91.3	154.0
115	20	1000	NBBPSC	7	32	65.4	35.5	11.9	39.2	56.9	90.5	148.8
115	20	1000	NBBPSC	8	25	58.2	34.6	1.6	24.1	59.4	83.8	109.9
115	20	1000	NBBPSC	9	36	62.6	43.1	1.9	25.1	68.6	89.0	171.8
115	20	1000	NBBPSC	10	31	62.4	30.6	6.1	41.0	61.7	80.9	120.1
115	20	1000	NBBPSC	11	28	63.0	31.3	1.0	46.8	59.4	80.6	131.9
115	20	1000	NBBPSC	12	12	49.3	36.7	0.7	30.1	37.7	65.3	130.2
116	20	1000	NBBPSC	1	1080	44.1	34.7	0.0	18.6	37.6	63.0	235.1
116	20	1000	NBBPSC	2	13	55.5	37.0	6.3	30.0	50.3	83.6	129.3
116	20	1000	NBBPSC	3	28	41.6	30.8	0.9	20.4	34.6	53.6	131.9
116	20	1000	NBBPSC	4	28	59.0	33.9	15.8	30.6	52.5	75.4	153.2
116	20	1000	NBBPSC	5	28	58.1	35.8	3.4	27.9	58.8	79.9	131.5
116	20	1000	NBBPSC	6	20	40.4	32.2	2.5	17.7	36.0	53.8	117.1
116	20	1000	NBBPSC	7	32	44.2	29.9	1.4	17.5	40.2	60.5	110.0
116	20	1000	NBBPSC	8	37	44.8	42.0	0.5	9.7	37.3	65.5	161.5
116	20	1000	NBBPSC	9	28	52.9	43.1	1.5	20.7	45.7	72.5	200.4
116	20	1000	NBBPSC	10	37	56.0	46.8	2.2	15.9	45.2	86.4	178.0
116	20	1000	NBBPSC	11	24	60.0	36.9	8.9	26.5	63.1	81.7	143.9
116	20	1000	NBBPSC	12	14	32.1	28.4	0.9	15.0	23.4	40.9	100.2
117	20	1000	NBBPSC	1	1081	49.7	33.8	0.0	22.8	45.6	71.9	167.1

117	20	1000	NBBPSC	2	22	47.6	33.0	0.3	18.5	52.0	65.5	111.7
117	20	1000	NBBPSC	3	32	54.4	45.9	0.1	11.7	43.3	83.3	154.5
117	20	1000	NBBPSC	4	24	53.8	39.1	0.8	23.9	49.4	66.6	154.1
117	20	1000	NBBPSC	5	19	52.6	36.1	3.0	17.4	54.2	70.4	124.7
117	20	1000	NBBPSC	6	22	53.3	40.0	0.0	25.9	55.4	82.4	159.0
117	20	1000	NBBPSC	7	27	53.6	41.1	2.4	17.7	48.6	82.0	143.5
117	20	1000	NBBPSC	8	22	38.1	23.9	2.1	19.4	41.2	50.6	84.2
117	20	1000	NBBPSC	9	30	52.7	42.4	1.2	21.3	44.8	79.0	159.4
117	20	1000	NBBPSC	10	26	50.7	31.7	4.9	31.9	43.7	77.1	107.4
117	20	1000	NBBPSC	11	30	41.5	33.6	1.1	18.1	33.8	58.7	131.3
117	20	1000	NBBPSC	12	7	29.6	24.1	0.2	10.9	25.1	47.9	64.2
118	20	1200	NBBPSC	1	1213	145.7	103.3	0.2	65.5	127.0	203.1	522.7
118	20	1200	NBBPSC	2	14	94.6	51.9	0.3	70.3	100.5	127.9	192.7
118	20	1200	NBBPSC	3	45	104.6	77.2	7.0	51.1	97.5	127.0	375.7
118	20	1200	NBBPSC	4	26	129.9	89.7	5.1	82.9	123.4	156.7	358.6
118	20	1200	NBBPSC	5	29	129.7	91.6	26.3	62.6	117.2	148.6	403.9
118	20	1200	NBBPSC	6	37	142.2	117.8	3.7	46.9	125.3	176.5	514.2
118	20	1200	NBBPSC	7	36	122.0	101.0	1.2	58.3	99.5	158.5	490.7
118	20	1200	NBBPSC	8	29	132.1	89.3	13.3	77.0	116.3	185.9	403.8
118	20	1200	NBBPSC	9	38	139.4	116.8	6.0	61.5	119.0	166.3	473.0
118	20	1200	NBBPSC	10	32	134.9	82.5	17.7	82.3	119.7	182.2	342.0
118	20	1200	NBBPSC	11	31	126.0	64.4	16.8	75.5	122.8	161.3	256.4
118	20	1200	NBBPSC	12	11	98.3	77.7	0.5	22.9	109.4	152.3	228.6
119	20	1200	NBBPSC	1	1242	69.8	48.2	0.0	31.4	64.3	98.2	297.9
119	20	1200	NBBPSC	2	16	92.4	45.4	1.3	65.1	97.2	130.2	161.1
119	20	1200	NBBPSC	3	34	59.3	42.5	4.9	26.6	48.0	91.0	154.8
119	20	1200	NBBPSC	4	31	74.5	49.7	2.1	29.8	77.2	102.7	193.2
119	20	1200	NBBPSC	5	34	68.0	56.7	1.2	18.3	57.5	117.0	203.1
119	20	1200	NBBPSC	6	24	82.7	50.3	7.1	44.3	84.5	118.7	168.2
119	20	1200	NBBPSC	7	34	71.0	45.7	2.7	29.7	68.2	100.9	157.3
119	20	1200	NBBPSC	8	40	68.9	42.9	4.2	36.1	68.2	90.3	178.4
119	20	1200	NBBPSC	9	32	78.4	51.0	1.5	43.2	67.1	106.1	200.4
119	20	1200	NBBPSC	10	41	74.6	43.3	2.7	42.5	67.5	97.6	178.0
119	20	1200	NBBPSC	11	31	72.1	41.0	8.6	37.6	72.1	96.7	163.9
119	20	1200	NBBPSC	12	20	58.5	40.3	7.5	29.4	54.6	76.5	144.3
120	20	1200	NBBPSC	1	1243	66.8	43.0	0.0	32.9	64.7	94.9	294.2
120	20	1200	NBBPSC	2	28	75.9	42.3	9.9	50.2	70.9	96.1	180.6
120	20	1200	NBBPSC	3	36	63.9	45.7	0.0	25.0	53.9	101.9	141.7
120	20	1200	NBBPSC	4	25	72.8	52.8	8.1	30.8	65.7	97.8	223.4
120	20	1200	NBBPSC	5	19	74.9	44.8	6.9	48.8	73.3	85.4	157.8
120	20	1200	NBBPSC	6	27	75.9	43.2	9.9	46.7	68.6	99.8	177.7
120	20	1200	NBBPSC	7	31	59.5	43.9	2.4	34.9	56.1	80.0	199.7
120	20	1200	NBBPSC	8	27	56.1	39.8	1.8	20.4	53.7	93.3	125.7
120	20	1200	NBBPSC	9	35	72.4	45.0	0.4	39.6	78.1	110.8	148.4
120	20	1200	NBBPSC	10	30	78.1	35.2	7.5	52.9	81.0	110.0	133.9
120	20	1200	NBBPSC	11	31	57.1	41.8	1.1	21.4	43.6	80.1	168.6
120	20	1200	NBBPSC	12	8	53.9	37.6	2.5	35.0	51.4	67.1	125.4
121	20	1400	NBBPSC	1	1208	311.3	230.3	0.3	149.0	267.0	428.5	1307.4
121	20	1400	NBBPSC	2	17	285.4	175.2	21.1	173.3	350.3	429.1	524.2
121	20	1400	NBBPSC	3	43	282.6	183.4	35.4	112.4	255.6	405.7	673.6
121	20	1400	NBBPSC	4	23	305.7	207.7	23.8	123.9	273.6	443.5	668.5
121	20	1400	NBBPSC	5	27	301.0	180.7	1.2	174.9	295.0	386.8	668.0
121	20	1400	NBBPSC	6	35	293.6	249.1	3.8	101.6	272.9	377.3	1075.1
121	20	1400	NBBPSC	7	35	216.3	166.6	1.2	78.5	212.1	315.2	603.8
121	20	1400	NBBPSC	8	27	294.2	175.1	26.1	149.6	349.6	390.8	809.7
121	20	1400	NBBPSC	9	35	294.1	250.5	6.0	98.0	268.9	353.2	1173.5
121	20	1400	NBBPSC	10	32	299.1	154.9	24.1	180.8	305.0	435.2	549.6
121	20	1400	NBBPSC	11	35	245.5	188.0	36.7	87.3	178.9	369.2	683.3
121	20	1400	NBBPSC	12	14	314.0	193.5	0.3	152.2	367.1	454.9	519.8
122	20	1400	NBBPSC	1	1286	189.3	125.7	0.3	95.2	177.8	253.5	747.5
122	20	1400	NBBPSC	2	18	219.7	147.0	46.0	107.9	205.1	269.2	641.4

122	20	1400	NBBPSC	3	33	175.2	141.2	12.9	82.1	139.2	220.4	695.7
122	20	1400	NBBPSC	4	32	202.3	173.2	30.8	90.9	138.9	213.5	678.3
122	20	1400	NBBPSC	5	33	163.7	110.8	5.4	97.7	141.7	213.2	475.2
122	20	1400	NBBPSC	6	25	168.5	83.1	24.3	96.4	185.3	220.1	321.2
122	20	1400	NBBPSC	7	35	174.0	116.4	21.6	106.2	134.0	205.9	557.4
122	20	1400	NBBPSC	8	40	163.6	116.9	2.6	81.6	109.7	219.6	507.7
122	20	1400	NBBPSC	9	33	170.8	110.4	16.3	97.7	153.6	232.3	573.4
122	20	1400	NBBPSC	10	42	174.5	137.9	0.8	73.3	135.9	229.7	650.6
122	20	1400	NBBPSC	11	33	209.7	153.3	1.8	96.3	207.5	264.6	705.4
122	20	1400	NBBPSC	12	20	201.0	124.6	6.5	101.7	216.6	272.8	455.6
123	20	1400	NBBPSC	1	1261	227.5	158.8	0.3	120.2	208.2	294.5	969.6
123	20	1400	NBBPSC	2	29	231.2	168.3	43.8	126.2	194.6	273.4	780.8
123	20	1400	NBBPSC	3	36	181.0	127.9	3.6	75.3	139.3	252.5	474.2
123	20	1400	NBBPSC	4	26	235.3	204.0	18.7	82.8	183.7	333.5	920.3
123	20	1400	NBBPSC	5	20	247.0	189.5	42.0	98.0	240.7	317.3	876.7
123	20	1400	NBBPSC	6	27	194.2	120.6	9.0	96.8	200.9	296.1	408.1
123	20	1400	NBBPSC	7	33	181.6	113.3	5.7	81.2	154.3	259.0	413.6
123	20	1400	NBBPSC	8	30	179.3	121.0	10.6	74.7	169.9	269.6	377.8
123	20	1400	NBBPSC	9	34	261.4	172.6	41.8	129.7	250.4	312.3	787.3
123	20	1400	NBBPSC	10	28	204.4	123.0	49.6	110.0	186.5	273.9	513.0
123	20	1400	NBBPSC	11	33	164.7	97.9	1.1	99.1	141.8	223.6	386.1
123	20	1400	NBBPSC	12	7	264.8	273.5	17.7	123.7	190.6	275.6	846.7
124	20	1600	NBBPSC	1	1190	456.4	324.2	3.0	207.4	414.6	636.1	1727.4
124	20	1600	NBBPSC	2	17	421.1	244.1	23.9	322.3	430.0	612.6	763.3
124	20	1600	NBBPSC	3	41	419.2	326.8	19.0	153.6	353.4	536.0	1346.4
124	20	1600	NBBPSC	4	22	413.9	260.5	43.2	185.3	426.0	576.9	1034.6
124	20	1600	NBBPSC	5	30	476.7	342.9	21.0	253.8	454.7	614.2	1555.8
124	20	1600	NBBPSC	6	33	445.5	337.9	35.5	262.7	460.9	570.6	1593.2
124	20	1600	NBBPSC	7	33	306.9	195.3	14.5	153.0	289.0	423.5	668.3
124	20	1600	NBBPSC	8	27	409.4	264.2	42.8	175.7	392.8	571.9	1000.4
124	20	1600	NBBPSC	9	35	380.3	233.5	12.0	185.8	415.0	505.9	876.9
124	20	1600	NBBPSC	10	36	457.1	201.2	44.0	330.3	427.3	633.1	808.9
124	20	1600	NBBPSC	11	36	387.6	257.1	19.2	162.9	344.2	614.8	935.7
124	20	1600	NBBPSC	12	14	420.4	236.7	18.7	267.1	469.1	623.5	708.8
125	20	1600	NBBPSC	1	1230	397.5	283.5	0.2	190.9	360.4	538.1	1639.2
125	20	1600	NBBPSC	2	17	380.1	185.0	61.0	259.5	415.1	499.2	735.6
125	20	1600	NBBPSC	3	35	378.5	278.9	22.0	189.9	336.4	506.1	1476.4
125	20	1600	NBBPSC	4	29	321.2	220.1	27.4	126.0	263.6	473.0	831.6
125	20	1600	NBBPSC	5	32	335.2	258.3	9.1	138.7	315.3	448.6	935.1
125	20	1600	NBBPSC	6	24	365.9	225.8	35.7	236.6	309.1	447.9	862.5
125	20	1600	NBBPSC	7	33	344.4	189.6	71.2	221.0	300.5	478.9	838.5
125	20	1600	NBBPSC	8	37	335.8	259.1	25.9	128.1	260.4	501.0	915.3
125	20	1600	NBBPSC	9	34	394.1	209.9	123.5	222.9	370.3	539.5	858.6
125	20	1600	NBBPSC	10	36	373.3	251.7	0.8	173.0	340.0	511.6	1094.5
125	20	1600	NBBPSC	11	30	398.0	233.4	43.9	226.7	427.9	503.1	1082.9
125	20	1600	NBBPSC	12	20	363.2	226.9	24.0	188.0	405.6	536.1	760.5
126	20	1600	NBBPSC	1	1288	344.9	238.5	1.7	171.8	317.0	457.0	1543.8
126	20	1600	NBBPSC	2	29	359.6	207.6	60.3	177.8	313.1	538.4	810.7
126	20	1600	NBBPSC	3	34	285.2	147.5	33.6	162.1	271.5	391.9	536.3
126	20	1600	NBBPSC	4	27	326.7	239.5	42.5	150.4	279.8	464.2	1167.0
126	20	1600	NBBPSC	5	19	341.1	262.8	50.5	147.5	280.0	444.1	1009.5
126	20	1600	NBBPSC	6	27	294.6	225.4	46.7	127.0	270.9	390.7	1108.7
126	20	1600	NBBPSC	7	35	305.5	222.7	36.2	133.3	244.0	440.5	1110.7
126	20	1600	NBBPSC	8	32	329.1	233.9	13.0	116.5	348.5	499.6	1046.9
126	20	1600	NBBPSC	9	36	392.0	278.5	35.5	226.9	363.4	463.6	1347.4
126	20	1600	NBBPSC	10	27	308.3	243.9	28.1	142.4	204.7	410.2	1138.8
126	20	1600	NBBPSC	11	29	279.1	155.9	10.4	185.5	283.3	331.8	709.7
126	20	1600	NBBPSC	12	6	247.7	135.8	38.8	179.7	281.0	303.8	427.8
127	40	400	NBBPSC	1	471	23.2	19.9	0.0	4.1	20.9	38.0	90.3
127	40	400	NBBPSC	2	28	26.4	23.8	0.4	2.1	21.7	39.3	86.0
127	40	400	NBBPSC	3	32	19.2	20.4	0.0	1.2	10.7	34.8	65.6

127	40	400	NBBPSC	4	37	24.8	20.2	0.0	3.3	27.2	39.1	68.3
127	40	400	NBBPSC	5	38	20.7	18.8	0.3	2.9	16.7	33.8	60.3
127	40	400	NBBPSC	6	34	27.2	20.2	0.4	11.9	28.4	34.2	76.5
127	40	400	NBBPSC	7	36	24.3	22.1	0.0	5.6	21.5	40.9	93.2
127	40	400	NBBPSC	8	28	22.7	17.3	0.4	6.3	19.6	37.3	52.0
127	40	400	NBBPSC	9	37	31.8	21.7	0.6	14.8	30.9	44.6	73.9
127	40	400	NBBPSC	10	36	22.3	18.5	0.4	5.1	20.0	38.7	63.9
127	40	400	NBBPSC	11	26	25.7	16.3	0.9	11.2	27.0	36.0	54.3
127	40	400	NBBPSC	12	5	13.2	22.6	0.0	0.2	0.4	12.9	52.4
128	40	400	NBBPSC	1	468	24.1	20.0	0.0	5.5	22.8	38.3	92.4
128	40	400	NBBPSC	2	23	12.5	15.7	0.0	0.5	2.6	20.8	48.9
128	40	400	NBBPSC	3	27	32.7	30.2	0.3	5.4	32.1	55.1	99.7
128	40	400	NBBPSC	4	41	24.3	18.4	0.0	3.0	24.2	39.0	59.4
128	40	400	NBBPSC	5	29	24.5	24.0	0.2	2.1	22.2	30.9	93.8
128	40	400	NBBPSC	6	32	21.5	18.0	0.4	6.5	20.3	34.2	61.5
128	40	400	NBBPSC	7	20	28.7	22.1	0.9	13.1	27.6	44.8	70.8
128	40	400	NBBPSC	8	35	28.8	17.3	0.4	15.1	29.0	40.8	62.0
128	40	400	NBBPSC	9	22	27.1	17.8	0.5	13.5	24.2	36.6	64.3
128	40	400	NBBPSC	10	35	24.1	21.5	0.5	4.7	18.7	37.2	73.2
128	40	400	NBBPSC	11	38	30.6	24.6	0.4	13.1	23.0	45.8	102.6
128	40	400	NBBPSC	12	6	25.8	11.5	12.5	16.7	25.3	34.4	40.5
129	40	400	NBBPSC	1	444	23.0	19.6	0.0	4.2	20.3	36.0	104.2
129	40	400	NBBPSC	2	27	23.5	20.0	0.0	4.4	20.6	40.2	63.0
129	40	400	NBBPSC	3	39	23.8	16.9	0.0	8.5	22.0	40.0	53.4
129	40	400	NBBPSC	4	35	29.5	22.0	0.6	9.1	31.1	43.6	80.2
129	40	400	NBBPSC	5	45	25.6	18.9	0.0	11.7	24.2	40.4	67.0
129	40	400	NBBPSC	6	27	24.9	15.9	0.1	9.8	25.9	35.8	61.5
129	40	400	NBBPSC	7	30	21.1	23.9	0.0	0.6	15.8	34.5	87.6
129	40	400	NBBPSC	8	32	25.4	19.8	0.0	7.6	23.8	44.4	61.6
129	40	400	NBBPSC	9	33	24.9	20.2	0.0	4.2	19.7	40.6	63.9
129	40	400	NBBPSC	10	29	31.1	24.8	0.0	9.9	29.4	46.5	87.3
129	40	400	NBBPSC	11	30	21.4	18.5	1.0	6.1	16.7	31.2	70.6
129	40	400	NBBPSC	12	4	8.4	5.9	4.9	5.1	5.8	9.1	17.2
130	40	600	NBBPSC	1	608	29.9	23.3	0.0	7.9	29.0	47.7	106.1
130	40	600	NBBPSC	2	33	27.9	22.7	0.5	7.7	22.2	46.3	70.3
130	40	600	NBBPSC	3	41	31.2	24.0	0.0	12.5	26.0	47.0	93.4
130	40	600	NBBPSC	4	43	31.4	23.6	0.3	17.0	25.4	40.8	100.6
130	40	600	NBBPSC	5	41	30.8	22.7	0.4	11.4	27.2	44.1	85.9
130	40	600	NBBPSC	6	43	25.9	21.9	0.3	5.1	20.7	43.4	89.7
130	40	600	NBBPSC	7	42	27.8	26.0	0.2	4.7	22.4	40.2	121.4
130	40	600	NBBPSC	8	39	27.9	21.9	0.0	8.0	22.4	45.9	72.4
130	40	600	NBBPSC	9	47	30.5	26.4	0.6	9.8	26.4	47.7	111.9
130	40	600	NBBPSC	10	42	35.2	24.3	1.4	18.6	28.6	49.0	97.6
130	40	600	NBBPSC	11	35	38.7	19.1	4.7	22.5	38.2	50.4	83.1
130	40	600	NBBPSC	12	8	27.2	21.2	1.0	14.9	28.9	34.2	66.0
131	40	600	NBBPSC	1	594	28.2	22.1	0.0	8.1	26.4	43.9	97.7
131	40	600	NBBPSC	2	25	29.8	27.4	0.5	3.6	23.4	48.5	100.5
131	40	600	NBBPSC	3	29	35.8	24.9	0.5	14.7	39.6	50.7	95.5
131	40	600	NBBPSC	4	52	29.6	22.5	0.3	7.6	25.4	46.3	88.9
131	40	600	NBBPSC	5	35	27.9	20.8	0.0	12.9	27.4	42.3	68.2
131	40	600	NBBPSC	6	43	32.6	25.1	0.0	13.6	27.2	45.8	102.2
131	40	600	NBBPSC	7	29	29.9	21.9	0.4	11.4	29.2	43.0	72.0
131	40	600	NBBPSC	8	44	35.3	23.8	0.2	14.4	34.3	51.7	97.7
131	40	600	NBBPSC	9	32	34.2	27.2	0.6	6.3	32.2	53.5	96.9
131	40	600	NBBPSC	10	52	32.5	27.3	0.5	8.2	28.5	52.9	113.4
131	40	600	NBBPSC	11	44	38.8	24.1	1.0	21.3	39.5	56.3	86.4
131	40	600	NBBPSC	12	9	21.7	15.1	0.3	8.1	22.2	35.4	42.9
132	40	600	NBBPSC	1	555	28.6	23.2	0.0	9.1	25.4	42.4	106.4
132	40	600	NBBPSC	2	36	31.4	26.7	0.0	9.6	22.8	50.5	86.2
132	40	600	NBBPSC	3	44	28.5	23.4	0.5	6.6	25.5	44.3	82.8
132	40	600	NBBPSC	4	39	28.7	23.7	0.0	9.3	23.5	43.8	85.8

132	40	600	NBBPSC	5	58	33.2	22.7	0.0	14.2	34.0	47.8	95.0
132	40	600	NBBPSC	6	37	35.5	26.3	0.0	9.0	34.2	51.9	84.0
132	40	600	NBBPSC	7	38	23.8	25.0	0.0	1.9	15.5	32.3	86.6
132	40	600	NBBPSC	8	37	32.0	25.2	0.4	9.1	30.8	45.6	88.1
132	40	600	NBBPSC	9	38	32.2	25.8	0.5	11.4	28.2	50.4	93.5
132	40	600	NBBPSC	10	34	24.3	21.8	0.0	5.4	20.6	36.8	93.2
132	40	600	NBBPSC	11	41	36.9	29.4	1.0	11.4	30.6	51.7	118.3
132	40	600	NBBPSC	12	6	18.8	19.5	1.0	5.4	15.4	22.5	54.1
133	40	800	NBBPSC	1	740	36.3	27.4	0.0	13.5	33.2	54.8	139.0
133	40	800	NBBPSC	2	40	42.6	29.8	1.3	17.8	39.2	56.4	123.7
133	40	800	NBBPSC	3	48	40.9	27.6	0.5	16.1	30.9	60.3	96.9
133	40	800	NBBPSC	4	50	39.2	24.8	1.3	20.4	34.4	49.5	104.2
133	40	800	NBBPSC	5	44	43.4	32.0	0.4	18.0	37.8	65.3	125.6
133	40	800	NBBPSC	6	49	37.9	28.7	0.6	17.4	30.6	51.8	143.8
133	40	800	NBBPSC	7	52	44.1	26.9	0.0	21.5	48.0	60.0	101.0
133	40	800	NBBPSC	8	43	45.2	31.7	1.5	20.5	41.8	69.3	128.6
133	40	800	NBBPSC	9	55	37.0	26.6	0.8	12.8	32.2	55.2	110.9
133	40	800	NBBPSC	10	53	38.2	22.4	2.1	22.0	34.1	50.1	100.7
133	40	800	NBBPSC	11	50	37.9	25.5	0.7	19.1	33.7	52.5	113.1
133	40	800	NBBPSC	12	11	29.2	30.6	0.2	1.3	32.8	48.5	90.9
134	40	800	NBBPSC	1	695	30.6	22.4	0.0	12.2	28.4	45.4	131.5
134	40	800	NBBPSC	2	33	27.2	21.2	0.3	10.1	27.3	39.3	93.2
134	40	800	NBBPSC	3	38	38.4	21.9	0.5	22.1	39.0	51.3	95.1
134	40	800	NBBPSC	4	63	34.8	22.1	0.4	20.4	32.0	44.8	113.6
134	40	800	NBBPSC	5	40	30.4	20.1	0.5	15.0	26.8	42.9	79.1
134	40	800	NBBPSC	6	46	34.8	23.9	0.0	10.4	32.0	55.9	78.6
134	40	800	NBBPSC	7	37	38.4	22.9	0.3	20.3	40.3	53.6	87.0
134	40	800	NBBPSC	8	50	38.5	19.4	0.5	25.1	42.3	49.9	77.8
134	40	800	NBBPSC	9	44	36.2	22.9	0.7	17.5	36.2	44.7	97.0
134	40	800	NBBPSC	10	58	35.6	24.9	0.2	16.1	30.4	51.9	119.8
134	40	800	NBBPSC	11	52	44.2	29.6	0.8	19.3	41.5	64.3	120.9
134	40	800	NBBPSC	12	10	25.0	16.8	0.1	12.8	27.3	35.9	48.9
135	40	800	NBBPSC	1	658	36.2	28.2	0.0	13.6	33.3	52.7	124.2
135	40	800	NBBPSC	2	42	41.1	29.9	0.5	20.2	35.1	54.6	134.2
135	40	800	NBBPSC	3	52	39.3	30.1	0.3	17.5	39.2	57.7	132.9
135	40	800	NBBPSC	4	48	39.7	31.7	0.0	20.4	32.7	54.8	142.0
135	40	800	NBBPSC	5	66	40.0	31.3	0.5	17.5	34.3	50.8	131.0
135	40	800	NBBPSC	6	46	35.2	26.3	2.4	17.2	25.3	48.8	112.1
135	40	800	NBBPSC	7	46	39.4	34.8	0.3	9.5	27.7	62.7	131.8
135	40	800	NBBPSC	8	41	36.6	33.7	0.0	12.8	26.7	49.2	148.1
135	40	800	NBBPSC	9	43	42.5	30.9	2.4	17.7	38.5	51.9	143.0
135	40	800	NBBPSC	10	44	33.2	28.8	0.0	8.3	27.8	49.8	108.9
135	40	800	NBBPSC	11	50	39.2	27.5	1.0	18.9	34.8	52.5	125.3
135	40	800	NBBPSC	12	7	28.4	21.2	0.0	14.6	25.4	43.7	56.8
136	40	1000	NBBPSC	1	860	61.0	38.1	0.0	28.7	59.2	88.9	194.9
136	40	1000	NBBPSC	2	44	69.9	35.1	0.5	47.1	67.2	97.0	142.7
136	40	1000	NBBPSC	3	54	63.3	37.6	0.3	30.8	64.4	89.4	138.8
136	40	1000	NBBPSC	4	59	61.2	34.9	2.1	31.8	61.2	81.1	143.2
136	40	1000	NBBPSC	5	54	66.1	40.4	4.5	31.8	63.3	96.5	144.8
136	40	1000	NBBPSC	6	54	56.4	40.9	0.6	20.8	49.7	79.7	149.1
136	40	1000	NBBPSC	7	57	60.4	38.8	0.4	27.3	57.6	86.0	152.1
136	40	1000	NBBPSC	8	51	73.0	33.5	1.8	42.1	76.4	98.3	150.4
136	40	1000	NBBPSC	9	66	66.8	38.3	6.0	35.4	64.6	91.6	154.0
136	40	1000	NBBPSC	10	62	62.1	38.8	1.6	25.3	67.8	86.9	171.8
136	40	1000	NBBPSC	11	57	62.2	31.1	1.0	41.0	59.0	81.6	131.9
136	40	1000	NBBPSC	12	12	49.3	36.7	0.7	30.1	37.7	65.3	130.2
137	40	1000	NBBPSC	1	805	43.5	34.3	0.0	17.9	36.8	62.3	214.0
137	40	1000	NBBPSC	2	44	43.1	30.5	1.5	21.1	36.1	57.9	133.1
137	40	1000	NBBPSC	3	46	46.1	32.6	0.5	21.6	40.5	68.5	149.3
137	40	1000	NBBPSC	4	73	47.9	42.7	0.3	19.6	40.9	66.4	235.1
137	40	1000	NBBPSC	5	53	43.5	32.9	0.4	15.8	38.6	61.4	130.4

137	40	1000	NBBPSC	6	58	48.9	35.7	0.0	22.3	38.6	66.1	152.0
137	40	1000	NBBPSC	7	43	47.4	33.3	0.9	23.3	39.4	63.8	131.9
137	40	1000	NBBPSC	8	55	57.8	34.4	3.4	28.8	53.4	75.9	153.2
137	40	1000	NBBPSC	9	52	42.7	30.5	1.4	17.7	39.6	55.8	117.1
137	40	1000	NBBPSC	10	65	48.2	42.3	0.5	13.7	40.9	68.4	200.4
137	40	1000	NBBPSC	11	61	57.6	42.9	2.2	18.0	53.0	85.4	178.0
137	40	1000	NBBPSC	12	14	32.1	28.4	0.9	15.0	23.4	40.9	100.2
138	40	1000	NBBPSC	1	790	48.1	32.6	0.0	22.6	44.0	69.7	167.1
138	40	1000	NBBPSC	2	45	57.5	36.6	1.0	28.0	55.4	82.7	140.2
138	40	1000	NBBPSC	3	59	48.5	35.4	0.5	15.3	43.6	77.2	153.3
138	40	1000	NBBPSC	4	59	52.6	36.8	0.4	21.5	55.5	80.3	145.8
138	40	1000	NBBPSC	5	72	51.2	34.9	0.8	19.9	51.0	71.7	122.8
138	40	1000	NBBPSC	6	55	60.2	36.7	0.6	31.3	61.7	87.4	139.8
138	40	1000	NBBPSC	7	54	51.6	40.9	0.1	12.7	48.7	80.1	154.5
138	40	1000	NBBPSC	8	45	53.1	36.6	0.8	22.4	50.8	65.1	154.1
138	40	1000	NBBPSC	9	48	53.4	40.6	0.0	18.8	50.8	82.1	159.0
138	40	1000	NBBPSC	10	52	46.4	36.2	1.2	20.1	41.2	68.0	159.4
138	40	1000	NBBPSC	11	55	46.0	33.0	1.1	21.3	38.9	65.0	131.3
138	40	1000	NBBPSC	12	7	29.6	24.1	0.2	10.9	25.1	47.9	64.2
139	40	1200	NBBPSC	1	921	148.6	103.9	0.2	66.3	129.3	210.6	501.5
139	40	1200	NBBPSC	2	45	137.2	110.9	5.4	66.7	109.4	195.3	522.7
139	40	1200	NBBPSC	3	58	143.0	99.8	6.2	72.1	118.1	200.4	459.1
139	40	1200	NBBPSC	4	61	128.5	82.5	3.3	64.9	115.0	179.3	336.6
139	40	1200	NBBPSC	5	63	152.9	107.1	5.5	66.8	137.3	203.3	464.6
139	40	1200	NBBPSC	6	58	116.7	99.9	2.4	51.7	92.9	144.6	509.1
139	40	1200	NBBPSC	7	61	102.3	70.5	0.3	53.8	97.8	127.0	375.7
139	40	1200	NBBPSC	8	57	126.9	89.9	5.1	61.8	119.2	152.6	403.9
139	40	1200	NBBPSC	9	71	134.6	109.9	1.2	58.8	113.8	169.8	514.2
139	40	1200	NBBPSC	10	67	138.7	106.1	6.0	66.0	119.5	178.9	473.0
139	40	1200	NBBPSC	11	62	128.4	72.3	16.8	79.2	122.1	169.2	342.0
139	40	1200	NBBPSC	12	11	98.3	77.7	0.5	22.9	109.4	152.3	228.6
140	40	1200	NBBPSC	1	928	68.9	48.3	0.0	30.1	62.7	98.9	297.9
140	40	1200	NBBPSC	2	51	68.7	54.7	1.0	23.3	62.9	91.7	213.2
140	40	1200	NBBPSC	3	53	73.7	40.9	3.6	45.5	75.7	91.6	180.6
140	40	1200	NBBPSC	4	80	75.0	51.3	0.3	35.1	69.6	106.3	235.1
140	40	1200	NBBPSC	5	62	73.9	42.8	2.3	40.9	77.0	102.1	191.1
140	40	1200	NBBPSC	6	67	69.8	48.9	1.3	39.9	56.0	88.5	247.0
140	40	1200	NBBPSC	7	53	68.4	45.8	1.3	27.9	56.5	107.8	161.1
140	40	1200	NBBPSC	8	63	71.6	53.2	1.2	23.8	68.1	109.4	203.1
140	40	1200	NBBPSC	9	58	75.8	47.6	2.7	34.8	74.7	113.0	168.2
140	40	1200	NBBPSC	10	72	73.1	46.6	1.5	38.3	68.2	95.5	200.4
140	40	1200	NBBPSC	11	72	73.6	42.0	2.7	38.5	69.2	98.2	178.0
140	40	1200	NBBPSC	12	20	58.5	40.3	7.5	29.4	54.6	76.5	144.3
141	40	1200	NBBPSC	1	921	64.7	41.2	0.0	32.8	61.8	91.5	222.6
141	40	1200	NBBPSC	2	51	75.1	53.9	1.2	41.5	75.8	103.0	294.2
141	40	1200	NBBPSC	3	63	67.9	44.1	0.9	27.8	72.5	100.4	167.3
141	40	1200	NBBPSC	4	67	72.5	47.5	0.4	31.8	70.4	104.3	180.7
141	40	1200	NBBPSC	5	77	78.0	51.2	0.4	44.8	78.6	103.2	264.0
141	40	1200	NBBPSC	6	63	68.4	41.0	1.6	30.7	74.7	99.3	174.8
141	40	1200	NBBPSC	7	64	69.1	44.3	0.0	25.9	63.5	98.8	180.6
141	40	1200	NBBPSC	8	46	73.1	48.4	6.9	37.1	72.7	91.2	223.4
141	40	1200	NBBPSC	9	57	67.7	44.0	2.4	37.8	64.9	97.8	199.7
141	40	1200	NBBPSC	10	62	64.7	43.2	0.4	22.2	59.0	100.4	148.4
141	40	1200	NBBPSC	11	60	67.7	40.1	1.1	29.5	66.4	98.9	168.6
141	40	1200	NBBPSC	12	8	53.9	37.6	2.5	35.0	51.4	67.1	125.4
142	40	1400	NBBPSC	1	912	317.0	234.5	0.3	159.2	269.7	423.1	1307.4
142	40	1400	NBBPSC	2	48	311.9	226.0	17.0	144.5	257.1	441.7	1172.5
142	40	1400	NBBPSC	3	55	295.6	222.3	10.5	113.1	237.0	431.5	924.6
142	40	1400	NBBPSC	4	65	281.8	224.7	1.4	99.7	240.0	416.6	1175.8
142	40	1400	NBBPSC	5	62	341.6	220.8	15.3	176.0	366.8	499.5	914.4
142	40	1400	NBBPSC	6	59	238.0	182.1	2.8	69.6	200.2	400.8	709.2

142	40	1400	NBBPSC	7	62	279.1	178.5	21.1	109.9	247.4	419.1	673.6
142	40	1400	NBBPSC	8	52	293.1	193.7	1.2	113.5	272.7	395.3	668.5
142	40	1400	NBBPSC	9	68	259.9	215.1	1.2	96.0	231.9	367.7	1075.1
142	40	1400	NBBPSC	10	62	300.5	219.7	6.0	111.2	303.9	386.6	1173.5
142	40	1400	NBBPSC	11	66	267.5	172.5	24.1	106.0	242.4	402.2	683.3
142	40	1400	NBBPSC	12	14	314.0	193.5	0.3	152.2	367.1	454.9	519.8
143	40	1400	NBBPSC	1	963	192.1	127.0	0.3	99.0	182.9	255.1	747.5
143	40	1400	NBBPSC	2	51	204.5	129.4	1.9	117.1	182.2	295.9	613.0
143	40	1400	NBBPSC	3	55	204.2	132.0	1.6	119.4	184.7	254.5	675.6
143	40	1400	NBBPSC	4	84	172.5	123.2	22.6	76.3	141.6	253.5	663.0
143	40	1400	NBBPSC	5	64	164.6	95.1	13.3	84.5	164.9	226.3	357.5
143	40	1400	NBBPSC	6	68	173.2	123.9	6.0	89.7	151.9	217.7	608.4
143	40	1400	NBBPSC	7	54	196.9	152.0	12.9	84.8	170.4	228.0	695.7
143	40	1400	NBBPSC	8	63	175.5	136.2	5.4	91.8	130.4	210.9	678.3
143	40	1400	NBBPSC	9	60	171.7	103.1	21.6	103.3	156.1	216.9	557.4
143	40	1400	NBBPSC	10	73	166.9	113.3	2.6	81.6	140.5	226.9	573.4
143	40	1400	NBBPSC	11	75	190.0	144.9	0.8	91.0	159.0	241.4	705.4
143	40	1400	NBBPSC	12	20	201.0	124.6	6.5	101.7	216.6	272.8	455.6
144	40	1400	NBBPSC	1	928	228.2	154.8	0.3	121.1	208.8	293.5	948.5
144	40	1400	NBBPSC	2	52	227.0	205.0	4.3	103.1	154.4	307.3	969.6
144	40	1400	NBBPSC	3	67	215.2	158.8	17.7	83.1	217.4	269.9	773.8
144	40	1400	NBBPSC	4	70	217.1	126.2	15.8	127.1	222.3	295.5	706.0
144	40	1400	NBBPSC	5	76	236.7	186.5	5.7	113.4	208.3	305.8	883.3
144	40	1400	NBBPSC	6	66	231.2	176.5	2.4	111.1	209.4	294.3	860.0
144	40	1400	NBBPSC	7	65	203.4	148.2	3.6	92.2	165.4	262.2	780.8
144	40	1400	NBBPSC	8	48	238.3	192.4	18.7	95.1	209.3	317.2	920.3
144	40	1400	NBBPSC	9	59	187.4	116.0	5.7	84.1	175.5	282.2	413.6
144	40	1400	NBBPSC	10	64	224.6	155.4	10.6	90.7	239.4	306.1	787.3
144	40	1400	NBBPSC	11	60	180.8	110.7	1.1	97.1	159.8	239.6	513.0
144	40	1400	NBBPSC	12	7	264.8	273.5	17.7	123.7	190.6	275.6	846.7
145	40	1600	NBBPSC	1	894	455.0	313.8	3.0	229.6	415.8	620.0	1726.7
145	40	1600	NBBPSC	2	49	473.3	340.0	17.9	239.3	421.4	642.7	1472.3
145	40	1600	NBBPSC	3	54	511.3	444.3	11.5	172.2	382.6	689.0	1727.4
145	40	1600	NBBPSC	4	68	450.2	308.2	6.5	189.7	442.2	655.4	1325.3
145	40	1600	NBBPSC	5	59	536.3	385.4	13.5	234.4	490.9	706.7	1650.3
145	40	1600	NBBPSC	6	58	319.7	248.0	9.7	129.9	251.9	495.2	1063.7
145	40	1600	NBBPSC	7	61	416.0	300.6	19.0	165.4	365.4	551.9	1346.4
145	40	1600	NBBPSC	8	53	441.7	312.3	21.0	174.0	443.8	609.4	1555.8
145	40	1600	NBBPSC	9	66	391.5	282.4	14.5	199.5	374.5	538.7	1593.2
145	40	1600	NBBPSC	10	62	394.9	244.4	12.0	184.9	421.7	550.6	1000.4
145	40	1600	NBBPSC	11	70	415.9	231.9	19.2	218.1	412.6	608.8	935.7
145	40	1600	NBBPSC	12	14	420.4	236.7	18.7	267.1	469.1	623.5	708.8
146	40	1600	NBBPSC	1	921	402.1	288.6	0.2	187.7	360.4	544.0	1639.2
146	40	1600	NBBPSC	2	51	492.7	339.8	42.1	220.9	447.9	630.3	1473.0
146	40	1600	NBBPSC	3	51	391.5	270.9	18.7	206.3	369.6	495.7	1619.2
146	40	1600	NBBPSC	4	80	351.3	243.2	10.6	161.7	312.4	489.3	1286.9
146	40	1600	NBBPSC	5	65	348.8	213.6	0.5	202.3	333.1	474.5	1323.3
146	40	1600	NBBPSC	6	62	361.8	263.5	22.3	148.1	339.8	497.6	1277.8
146	40	1600	NBBPSC	7	54	382.1	246.2	22.0	229.6	383.7	507.9	1476.4
146	40	1600	NBBPSC	8	59	324.0	241.5	9.1	127.7	263.6	461.0	935.1
146	40	1600	NBBPSC	9	57	353.5	204.0	35.7	221.0	303.2	478.9	862.5
146	40	1600	NBBPSC	10	71	363.7	237.0	25.9	164.9	314.0	507.5	915.3
146	40	1600	NBBPSC	11	66	384.5	242.0	0.8	188.3	414.2	512.6	1094.5
146	40	1600	NBBPSC	12	20	363.2	226.9	24.0	188.0	405.6	536.1	760.5
147	40	1600	NBBPSC	1	948	351.8	243.0	1.7	192.2	318.4	470.7	1543.8
147	40	1600	NBBPSC	2	54	280.6	177.2	18.9	141.9	250.9	416.2	741.4
147	40	1600	NBBPSC	3	66	324.6	207.7	19.0	143.1	328.9	428.3	1063.3
147	40	1600	NBBPSC	4	71	324.5	175.5	41.1	192.3	308.2	430.4	876.2
147	40	1600	NBBPSC	5	78	343.3	261.6	17.7	145.2	276.8	470.6	1392.4
147	40	1600	NBBPSC	6	69	339.1	270.8	54.0	130.0	318.9	424.6	1449.9
147	40	1600	NBBPSC	7	64	324.3	182.9	33.6	172.2	308.7	455.5	810.7

147	40	1600	NBBPSC	8	48	328.4	243.3	42.5	140.5	279.9	451.3	1167.0
147	40	1600	NBBPSC	9	61	305.6	223.5	36.2	136.7	249.5	432.8	1110.7
147	40	1600	NBBPSC	10	67	361.0	260.2	13.0	149.3	349.8	488.0	1347.4
147	40	1600	NBBPSC	11	56	293.1	201.8	10.4	156.0	270.4	380.9	1138.8
147	40	1600	NBBPSC	12	6	247.7	135.8	38.8	179.7	281.0	303.8	427.8
148	60	400	NBBPSC	1	316	22.3	19.0	0.0	3.8	19.9	36.2	90.3
148	60	400	NBBPSC	2	39	26.2	22.4	0.0	7.0	21.9	42.6	77.1
148	60	400	NBBPSC	3	52	23.1	19.7	0.0	2.5	22.5	38.6	64.6
148	60	400	NBBPSC	4	46	25.1	22.7	0.0	4.4	21.3	39.5	82.0
148	60	400	NBBPSC	5	44	25.8	22.4	0.3	8.1	21.7	36.9	86.0
148	60	400	NBBPSC	6	52	21.1	20.1	0.0	1.6	15.3	37.1	68.3
148	60	400	NBBPSC	7	55	22.2	19.5	0.0	2.9	19.4	37.2	62.7
148	60	400	NBBPSC	8	44	26.5	19.2	0.4	11.9	27.7	36.8	76.5
148	60	400	NBBPSC	9	54	23.5	20.8	0.0	5.4	20.0	40.5	93.2
148	60	400	NBBPSC	10	56	28.6	20.8	0.4	10.7	30.5	43.9	73.9
148	60	400	NBBPSC	11	43	24.2	17.4	0.9	7.8	23.9	36.0	63.9
148	60	400	NBBPSC	12	5	13.2	22.6	0.0	0.2	0.4	12.9	52.4
149	60	400	NBBPSC	1	282	24.1	19.9	0.0	5.4	22.8	38.3	80.7
149	60	400	NBBPSC	2	42	23.0	23.1	0.0	0.7	16.9	38.6	92.4
149	60	400	NBBPSC	3	57	22.0	18.6	0.3	5.0	19.4	37.6	60.3
149	60	400	NBBPSC	4	62	24.8	19.2	0.0	7.8	23.2	37.9	79.7
149	60	400	NBBPSC	5	53	22.2	23.0	0.0	0.9	17.0	32.9	99.7
149	60	400	NBBPSC	6	41	32.1	23.2	0.3	11.6	33.8	45.2	83.6
149	60	400	NBBPSC	7	54	21.1	21.6	0.0	1.4	17.5	32.2	93.8
149	60	400	NBBPSC	8	39	25.3	19.3	0.4	8.1	23.2	37.6	70.8
149	60	400	NBBPSC	9	47	27.3	18.5	0.4	12.1	28.9	40.8	62.0
149	60	400	NBBPSC	10	47	27.5	20.6	0.5	12.0	24.0	39.8	73.2
149	60	400	NBBPSC	11	48	27.3	23.5	0.4	9.2	19.9	43.6	102.6
149	60	400	NBBPSC	12	6	25.8	11.5	12.5	16.7	25.3	34.4	40.5
150	60	400	NBBPSC	1	295	23.5	20.3	0.0	4.0	20.6	36.7	104.2
150	60	400	NBBPSC	2	39	19.5	17.5	0.4	6.5	12.5	29.2	57.9
150	60	400	NBBPSC	3	49	21.4	19.4	0.0	5.4	19.5	33.8	72.3
150	60	400	NBBPSC	4	50	22.1	16.9	0.4	4.2	22.1	33.1	56.4
150	60	400	NBBPSC	5	39	26.0	20.8	0.0	6.6	26.8	40.2	82.0
150	60	400	NBBPSC	6	55	23.6	17.6	0.0	4.8	21.9	40.0	61.6
150	60	400	NBBPSC	7	66	28.6	20.1	0.0	14.7	27.0	44.2	80.2
150	60	400	NBBPSC	8	42	23.3	21.3	0.0	2.8	24.6	36.5	87.6
150	60	400	NBBPSC	9	46	23.4	19.6	0.0	4.6	22.1	38.4	66.3
150	60	400	NBBPSC	10	47	28.8	23.0	0.0	8.4	23.6	41.8	87.3
150	60	400	NBBPSC	11	44	23.0	19.2	0.0	6.4	19.7	31.4	74.2
150	60	400	NBBPSC	12	4	8.4	5.9	4.9	5.1	5.8	9.1	17.2
151	60	600	NBBPSC	1	416	28.7	22.4	0.0	7.5	28.2	43.9	106.1
151	60	600	NBBPSC	2	48	34.1	26.1	0.0	8.3	33.9	51.2	95.1
151	60	600	NBBPSC	3	65	29.8	23.1	0.0	3.8	28.5	49.8	71.3
151	60	600	NBBPSC	4	57	36.2	26.4	0.0	13.9	36.8	54.8	96.0
151	60	600	NBBPSC	5	53	27.5	23.3	0.5	7.7	21.8	44.2	81.5
151	60	600	NBBPSC	6	63	33.6	25.6	0.0	13.4	31.8	48.2	100.6
151	60	600	NBBPSC	7	63	28.8	20.4	0.4	12.8	25.1	40.2	85.9
151	60	600	NBBPSC	8	53	26.4	23.2	0.2	4.7	20.7	42.5	89.7
151	60	600	NBBPSC	9	71	27.6	23.3	0.0	6.5	22.6	43.1	121.4
151	60	600	NBBPSC	10	66	31.9	25.3	0.6	12.1	27.3	49.8	111.9
151	60	600	NBBPSC	11	57	37.3	22.2	1.4	21.1	36.3	49.4	97.6
151	60	600	NBBPSC	12	8	27.2	21.2	1.0	14.9	28.9	34.2	66.0
152	60	600	NBBPSC	1	363	28.4	21.9	0.0	10.1	26.4	42.6	95.8
152	60	600	NBBPSC	2	54	25.3	23.3	0.2	4.0	21.3	40.3	87.2
152	60	600	NBBPSC	3	68	30.8	23.7	0.4	7.4	29.9	49.1	80.1
152	60	600	NBBPSC	4	76	28.6	22.1	0.0	6.8	29.8	44.6	97.7
152	60	600	NBBPSC	5	63	27.6	23.0	0.2	4.3	23.0	44.9	100.5
152	60	600	NBBPSC	6	50	33.4	24.1	0.3	11.2	34.6	50.3	95.5
152	60	600	NBBPSC	7	65	28.5	21.1	0.0	12.7	23.6	43.2	88.9
152	60	600	NBBPSC	8	52	33.2	24.8	0.0	13.5	28.9	47.8	102.2

152	60	600	NBBPSC	9	62	32.8	23.3	0.2	12.6	29.3	45.9	97.7
152	60	600	NBBPSC	10	63	32.8	26.6	0.6	8.0	30.9	53.0	113.4
152	60	600	NBBPSC	11	65	37.3	25.7	0.5	13.4	36.5	55.9	90.9
152	60	600	NBBPSC	12	9	21.7	15.1	0.3	8.1	22.2	35.4	42.9
153	60	600	NBBPSC	1	367	28.2	23.0	0.0	8.7	25.1	41.5	104.0
153	60	600	NBBPSC	2	50	32.3	24.1	0.0	10.3	29.7	51.8	80.0
153	60	600	NBBPSC	3	59	26.0	23.2	0.5	9.0	22.5	34.1	106.4
153	60	600	NBBPSC	4	65	32.0	23.5	0.0	12.7	30.1	46.0	100.8
153	60	600	NBBPSC	5	50	29.1	25.8	0.0	8.3	22.3	47.5	86.2
153	60	600	NBBPSC	6	62	29.7	22.8	0.5	8.5	26.3	45.5	82.9
153	60	600	NBBPSC	7	82	30.4	23.4	0.0	10.8	27.5	47.6	95.0
153	60	600	NBBPSC	8	54	33.0	27.3	0.0	5.7	31.1	51.5	86.6
153	60	600	NBBPSC	9	56	28.3	24.6	0.0	4.0	26.1	43.6	88.1
153	60	600	NBBPSC	10	55	30.8	24.4	0.0	8.2	28.0	48.4	93.5
153	60	600	NBBPSC	11	57	32.8	28.2	0.4	11.1	28.4	46.4	118.3
153	60	600	NBBPSC	12	6	18.8	19.5	1.0	5.4	15.4	22.5	54.1
154	60	800	NBBPSC	1	498	36.5	27.9	0.0	13.4	32.7	54.2	139.0
154	60	800	NBBPSC	2	60	39.1	27.8	0.4	18.6	34.6	60.3	101.4
154	60	800	NBBPSC	3	78	30.7	25.4	0.0	8.9	26.4	46.3	98.5
154	60	800	NBBPSC	4	78	38.8	26.4	0.0	16.4	40.2	59.5	97.9
154	60	800	NBBPSC	5	65	40.1	28.7	1.3	16.8	36.9	56.2	123.7
154	60	800	NBBPSC	6	73	41.1	27.0	0.5	17.7	33.9	60.2	97.3
154	60	800	NBBPSC	7	70	41.1	29.0	0.4	18.6	35.5	62.5	125.6
154	60	800	NBBPSC	8	63	39.6	28.1	0.6	20.0	34.2	53.3	143.8
154	60	800	NBBPSC	9	81	44.5	29.6	0.0	20.3	42.8	63.2	128.6
154	60	800	NBBPSC	10	78	36.7	25.9	0.8	14.1	32.2	52.6	110.9
154	60	800	NBBPSC	11	79	38.6	23.8	0.7	21.3	34.4	52.5	113.1
154	60	800	NBBPSC	12	11	29.2	30.6	0.2	1.3	32.8	48.5	90.9
155	60	800	NBBPSC	1	433	30.1	21.7	0.0	11.7	28.3	45.0	105.1
155	60	800	NBBPSC	2	62	33.6	24.4	0.5	14.1	31.5	46.2	107.2
155	60	800	NBBPSC	3	76	33.6	23.9	0.0	14.4	31.0	48.1	97.6
155	60	800	NBBPSC	4	85	30.7	23.7	0.2	10.7	28.1	45.9	131.5
155	60	800	NBBPSC	5	77	27.4	20.6	0.3	12.5	24.6	38.8	93.2
155	60	800	NBBPSC	6	63	38.6	19.7	3.6	25.9	38.1	51.0	95.1
155	60	800	NBBPSC	7	76	31.5	22.6	0.4	15.5	25.8	44.0	113.6
155	60	800	NBBPSC	8	59	38.8	24.1	0.0	21.9	40.4	58.8	87.0
155	60	800	NBBPSC	9	72	36.0	20.1	0.3	20.1	38.9	49.7	77.8
155	60	800	NBBPSC	10	77	35.3	21.6	0.2	16.8	34.6	46.1	97.0
155	60	800	NBBPSC	11	77	42.1	29.9	0.8	17.4	37.6	61.0	120.9
155	60	800	NBBPSC	12	10	25.0	16.8	0.1	12.8	27.3	35.9	48.9
156	60	800	NBBPSC	1	428	35.7	28.5	0.0	13.0	32.6	52.3	124.2
156	60	800	NBBPSC	2	61	41.6	28.4	0.0	22.5	39.0	58.1	120.0
156	60	800	NBBPSC	3	74	36.8	26.4	0.6	19.4	35.6	47.0	115.5
156	60	800	NBBPSC	4	79	33.4	26.5	0.2	11.9	30.1	49.5	111.3
156	60	800	NBBPSC	5	58	41.2	31.2	0.0	19.8	34.2	58.5	134.2
156	60	800	NBBPSC	6	75	39.6	28.2	0.3	18.9	39.2	56.8	132.9
156	60	800	NBBPSC	7	94	39.1	32.8	0.0	16.8	32.7	50.4	142.0
156	60	800	NBBPSC	8	65	39.2	30.9	0.5	16.9	26.6	61.0	131.8
156	60	800	NBBPSC	9	66	36.6	33.0	0.0	12.1	26.9	57.4	148.1
156	60	800	NBBPSC	10	64	36.3	30.2	0.0	13.7	36.8	45.7	143.0
156	60	800	NBBPSC	11	72	39.5	27.7	0.4	20.0	34.8	53.8	125.3
156	60	800	NBBPSC	12	7	28.4	21.2	0.0	14.6	25.4	43.7	56.8
157	60	1000	NBBPSC	1	579	60.2	38.1	0.0	26.6	57.9	86.7	175.1
157	60	1000	NBBPSC	2	73	65.0	35.7	1.3	38.3	67.5	94.2	127.3
157	60	1000	NBBPSC	3	87	59.1	36.2	0.0	26.7	62.4	82.6	143.6
157	60	1000	NBBPSC	4	92	63.7	41.3	0.3	33.9	61.1	92.6	194.9
157	60	1000	NBBPSC	5	74	67.5	36.7	0.5	41.7	62.0	96.2	172.6
157	60	1000	NBBPSC	6	86	63.9	37.1	0.3	31.6	67.4	91.0	138.8
157	60	1000	NBBPSC	7	82	62.7	37.9	4.5	31.7	57.4	82.2	144.8
157	60	1000	NBBPSC	8	70	58.3	41.4	0.6	22.7	51.1	82.9	152.1
157	60	1000	NBBPSC	9	92	66.5	35.8	0.4	36.6	67.9	91.6	150.4

157	60	1000	NBBPSC	10	94	65.2	36.9	1.6	34.9	65.9	89.7	154.0
157	60	1000	NBBPSC	11	90	62.7	35.8	1.0	37.9	61.1	83.9	171.8
157	60	1000	NBBPSC	12	12	49.3	36.7	0.7	30.1	37.7	65.3	130.2
158	60	1000	NBBPSC	1	512	43.3	34.3	0.0	18.1	35.9	61.8	214.0
158	60	1000	NBBPSC	2	64	44.9	34.4	0.4	17.6	43.5	62.6	136.9
158	60	1000	NBBPSC	3	92	44.3	38.2	0.0	15.7	35.6	63.8	159.2
158	60	1000	NBBPSC	4	95	42.3	31.6	0.2	20.1	36.8	57.6	153.1
158	60	1000	NBBPSC	5	90	42.6	31.7	0.5	17.1	38.2	62.6	166.4
158	60	1000	NBBPSC	6	75	47.8	37.3	0.3	21.9	40.9	68.1	235.1
158	60	1000	NBBPSC	7	96	45.3	36.8	0.4	17.1	38.8	63.1	193.6
158	60	1000	NBBPSC	8	71	50.8	36.3	0.0	22.5	44.3	70.7	152.0
158	60	1000	NBBPSC	9	82	52.4	34.1	0.9	27.3	49.6	68.4	153.2
158	60	1000	NBBPSC	10	89	43.6	35.5	0.5	13.7	37.4	59.9	161.5
158	60	1000	NBBPSC	11	89	56.1	42.8	1.5	19.7	49.5	80.5	200.4
158	60	1000	NBBPSC	12	14	32.1	28.4	0.9	15.0	23.4	40.9	100.2
159	60	1000	NBBPSC	1	519	47.3	33.4	0.0	21.7	41.3	68.4	167.1
159	60	1000	NBBPSC	2	69	51.0	34.7	0.1	27.0	43.0	75.1	126.0
159	60	1000	NBBPSC	3	86	46.6	27.6	0.3	23.7	47.1	66.2	118.9
159	60	1000	NBBPSC	4	96	50.3	30.7	0.1	24.0	53.9	70.9	124.8
159	60	1000	NBBPSC	5	64	58.7	37.9	1.0	27.6	56.2	87.8	154.9
159	60	1000	NBBPSC	6	85	49.7	35.9	0.4	14.6	48.9	80.8	153.3
159	60	1000	NBBPSC	7	109	51.8	35.4	0.8	21.8	52.0	73.2	145.8
159	60	1000	NBBPSC	8	77	57.9	38.3	0.2	21.8	58.9	81.5	154.5
159	60	1000	NBBPSC	9	74	53.1	38.5	0.1	17.0	50.4	81.5	154.1
159	60	1000	NBBPSC	10	71	47.5	35.7	0.0	19.4	42.3	74.7	159.0
159	60	1000	NBBPSC	11	83	48.4	36.9	1.1	21.0	39.0	77.0	159.4
159	60	1000	NBBPSC	12	7	29.6	24.1	0.2	10.9	25.1	47.9	64.2
160	60	1200	NBBPSC	1	619	148.6	103.5	0.2	66.3	129.7	217.8	501.5
160	60	1200	NBBPSC	2	79	172.3	109.2	3.7	82.3	155.5	244.2	409.2
160	60	1200	NBBPSC	3	96	138.4	104.6	0.3	66.8	123.4	176.0	486.6
160	60	1200	NBBPSC	4	96	146.6	100.2	1.9	67.6	134.7	191.4	474.1
160	60	1200	NBBPSC	5	78	137.2	112.4	2.3	62.5	102.1	182.3	522.7
160	60	1200	NBBPSC	6	91	143.6	94.9	3.3	73.2	125.9	194.6	459.1
160	60	1200	NBBPSC	7	92	138.7	99.5	5.5	63.0	110.9	191.8	464.6
160	60	1200	NBBPSC	8	73	113.3	91.9	0.3	55.1	103.8	142.8	509.1
160	60	1200	NBBPSC	9	103	115.8	84.9	5.1	54.8	102.7	144.0	403.9
160	60	1200	NBBPSC	10	105	136.2	106.3	1.2	63.9	114.4	173.8	514.2
160	60	1200	NBBPSC	11	94	132.8	88.2	6.0	67.6	122.1	166.6	473.0
160	60	1200	NBBPSC	12	11	98.3	77.7	0.5	22.9	109.4	152.3	228.6
161	60	1200	NBBPSC	1	598	67.0	46.8	0.0	29.1	61.4	94.6	244.8
161	60	1200	NBBPSC	2	72	76.6	55.6	0.2	31.4	73.2	111.2	270.4
161	60	1200	NBBPSC	3	103	73.5	48.2	0.1	33.7	77.9	105.3	190.8
161	60	1200	NBBPSC	4	108	73.2	53.3	1.0	34.8	70.0	101.0	297.9
161	60	1200	NBBPSC	5	103	64.1	48.7	1.0	24.2	58.3	91.5	213.2
161	60	1200	NBBPSC	6	83	75.7	48.3	0.3	40.2	73.7	96.5	235.1
161	60	1200	NBBPSC	7	110	74.7	44.7	0.8	41.8	77.1	103.9	193.6
161	60	1200	NBBPSC	8	84	71.5	48.1	1.3	38.4	61.8	104.6	247.0
161	60	1200	NBBPSC	9	96	68.1	50.1	1.2	26.4	57.1	104.3	203.1
161	60	1200	NBBPSC	10	98	73.0	45.6	2.7	35.5	70.4	107.6	178.4
161	60	1200	NBBPSC	11	104	75.1	44.8	1.5	38.8	69.2	100.3	200.4
161	60	1200	NBBPSC	12	20	58.5	40.3	7.5	29.4	54.6	76.5	144.3
162	60	1200	NBBPSC	1	616	64.2	40.8	0.0	32.8	61.0	90.3	222.6
162	60	1200	NBBPSC	2	80	66.8	41.0	0.0	35.6	61.9	99.6	160.8
162	60	1200	NBBPSC	3	92	68.9	38.6	1.1	39.8	75.9	96.5	163.4
162	60	1200	NBBPSC	4	105	61.6	44.7	0.3	23.0	61.1	84.8	193.8
162	60	1200	NBBPSC	5	79	73.0	50.2	1.0	39.1	70.8	99.4	294.2
162	60	1200	NBBPSC	6	95	68.0	45.7	0.4	27.8	68.8	100.4	180.7
162	60	1200	NBBPSC	7	115	78.3	49.8	0.4	37.8	78.6	107.0	264.0
162	60	1200	NBBPSC	8	91	70.8	40.8	1.6	35.3	74.7	98.3	180.6
162	60	1200	NBBPSC	9	79	67.7	46.6	0.0	28.0	64.0	95.5	223.4
162	60	1200	NBBPSC	10	85	63.5	42.7	1.8	29.6	60.5	93.9	199.7

162	60	1200	NBBPSC	11	93	69.5	42.1	0.4	30.1	68.9	102.0	168.6
162	60	1200	NBBPSC	12	8	53.9	37.6	2.5	35.0	51.4	67.1	125.4
163	60	1400	NBBPSC	1	611	325.5	237.1	0.3	163.7	278.3	434.7	1307.4
163	60	1400	NBBPSC	2	78	340.4	259.4	17.9	158.5	294.1	453.1	1169.2
163	60	1400	NBBPSC	3	91	268.3	205.7	1.6	139.0	214.7	382.6	1302.9
163	60	1400	NBBPSC	4	99	308.1	218.5	17.1	173.0	260.6	387.1	1064.4
163	60	1400	NBBPSC	5	82	299.2	224.7	17.0	130.6	252.6	429.1	1172.5
163	60	1400	NBBPSC	6	90	301.8	231.2	5.0	117.7	270.2	426.2	1175.8
163	60	1400	NBBPSC	7	94	311.0	214.1	1.4	106.0	273.8	448.9	914.4
163	60	1400	NBBPSC	8	76	247.7	182.1	2.8	70.0	205.7	416.4	709.2
163	60	1400	NBBPSC	9	96	283.8	187.0	1.2	113.5	258.8	400.5	673.6
163	60	1400	NBBPSC	10	98	270.8	207.4	1.2	94.6	263.9	384.9	1075.1
163	60	1400	NBBPSC	11	97	281.4	200.0	24.1	107.5	261.7	385.8	1173.5
163	60	1400	NBBPSC	12	14	314.0	193.5	0.3	152.2	367.1	454.9	519.8
164	60	1400	NBBPSC	1	627	193.5	123.5	0.3	101.9	188.2	254.7	747.5
164	60	1400	NBBPSC	2	77	193.1	133.9	1.0	98.1	158.3	254.1	734.4
164	60	1400	NBBPSC	3	103	194.2	123.7	0.9	105.4	167.9	270.9	635.6
164	60	1400	NBBPSC	4	108	194.1	146.2	6.8	81.8	181.5	264.8	709.9
164	60	1400	NBBPSC	5	104	178.9	126.1	1.9	87.1	158.6	235.2	614.4
164	60	1400	NBBPSC	6	87	182.3	125.3	1.6	88.7	163.8	240.3	675.6
164	60	1400	NBBPSC	7	115	175.8	113.3	13.3	84.3	164.5	253.5	663.0
164	60	1400	NBBPSC	8	86	182.9	129.3	6.0	93.7	159.5	225.9	641.4
164	60	1400	NBBPSC	9	95	181.3	144.9	5.4	85.1	141.7	224.4	695.7
164	60	1400	NBBPSC	10	100	168.5	108.3	2.6	86.9	142.9	219.5	557.4
164	60	1400	NBBPSC	11	108	184.1	135.1	0.8	91.7	155.0	237.6	705.4
164	60	1400	NBBPSC	12	20	201.0	124.6	6.5	101.7	216.6	272.8	455.6
165	60	1400	NBBPSC	1	619	233.8	160.7	1.8	127.7	213.8	296.5	948.5
165	60	1400	NBBPSC	2	84	232.3	159.9	6.6	109.6	215.4	310.4	799.9
165	60	1400	NBBPSC	3	93	209.1	145.7	3.8	106.1	199.2	275.8	742.2
165	60	1400	NBBPSC	4	104	209.6	132.6	0.3	114.7	196.3	287.5	768.0
165	60	1400	NBBPSC	5	81	227.0	173.6	4.3	127.2	192.9	305.2	969.6
165	60	1400	NBBPSC	6	101	214.4	144.4	17.7	104.0	219.1	281.5	773.8
165	60	1400	NBBPSC	7	115	228.0	171.9	5.7	110.7	201.9	304.2	883.3
165	60	1400	NBBPSC	8	94	236.9	172.5	2.4	123.4	210.6	296.6	860.0
165	60	1400	NBBPSC	9	82	210.7	170.2	3.6	84.2	169.2	290.1	920.3
165	60	1400	NBBPSC	10	90	181.4	118.1	5.7	75.5	151.9	279.5	413.6
165	60	1400	NBBPSC	11	92	215.5	140.5	1.1	111.3	198.9	276.4	787.3
165	60	1400	NBBPSC	12	7	264.8	273.5	17.7	123.7	190.6	275.6	846.7
166	60	1600	NBBPSC	1	597	466.7	315.9	7.4	240.4	420.3	646.1	1726.7
166	60	1600	NBBPSC	2	80	516.4	377.1	18.9	270.9	456.6	698.1	1692.3
166	60	1600	NBBPSC	3	89	344.0	232.8	3.8	152.8	300.2	495.9	1076.6
166	60	1600	NBBPSC	4	96	448.0	266.9	3.0	285.1	433.2	606.9	1465.9
166	60	1600	NBBPSC	5	82	456.4	345.8	15.5	194.4	428.6	611.9	1711.5
166	60	1600	NBBPSC	6	91	489.3	393.2	6.5	184.2	440.8	656.3	1727.4
166	60	1600	NBBPSC	7	92	504.5	363.5	13.5	192.4	465.5	715.0	1650.3
166	60	1600	NBBPSC	8	76	340.1	242.6	9.7	130.6	322.7	512.4	1063.7
166	60	1600	NBBPSC	9	95	428.1	317.0	19.0	165.3	368.4	585.2	1555.8
166	60	1600	NBBPSC	10	95	391.2	277.2	12.0	165.5	375.6	554.1	1593.2
166	60	1600	NBBPSC	11	102	411.9	229.1	19.2	210.0	420.7	589.0	935.7
166	60	1600	NBBPSC	12	14	420.4	236.7	18.7	267.1	469.1	623.5	708.8
167	60	1600	NBBPSC	1	602	405.0	280.2	0.2	202.6	376.5	550.3	1510.2
167	60	1600	NBBPSC	2	73	405.9	296.5	30.1	186.1	351.3	540.5	1416.7
167	60	1600	NBBPSC	3	97	406.4	266.5	5.8	247.4	360.4	539.8	1443.4
167	60	1600	NBBPSC	4	103	402.6	349.0	6.8	130.5	330.6	530.0	1639.2
167	60	1600	NBBPSC	5	102	420.6	318.1	13.9	197.1	383.0	543.4	1490.2
167	60	1600	NBBPSC	6	82	355.3	250.3	16.6	187.9	311.5	483.8	1619.2
167	60	1600	NBBPSC	7	112	364.0	236.5	0.5	193.7	355.4	504.7	1323.3
167	60	1600	NBBPSC	8	79	359.8	249.1	22.3	150.7	358.1	492.7	1277.8
167	60	1600	NBBPSC	9	93	350.7	256.4	9.1	136.0	319.0	496.9	1476.4
167	60	1600	NBBPSC	10	94	346.5	226.1	25.9	170.0	292.0	480.9	915.3
167	60	1600	NBBPSC	11	100	387.8	230.6	0.8	209.0	382.7	513.4	1094.5

167	60	1600	NBBPSC	12	20	363.2	226.9	24.0	188.0	405.6	536.1	760.5
168	60	1600	NBBPSC	1	630	351.5	240.0	1.7	193.6	321.4	467.5	1543.8
168	60	1600	NBBPSC	2	85	353.3	222.7	2.8	197.9	316.9	505.1	1137.5
168	60	1600	NBBPSC	3	99	359.6	283.4	35.1	190.4	306.7	456.7	1483.7
168	60	1600	NBBPSC	4	103	353.5	251.2	39.8	185.2	288.3	452.8	1252.1
168	60	1600	NBBPSC	5	85	299.8	184.4	5.0	143.8	296.9	421.6	936.6
168	60	1600	NBBPSC	6	101	324.2	195.0	19.0	156.9	315.6	429.5	1063.3
168	60	1600	NBBPSC	7	118	333.8	237.0	17.7	145.2	283.8	457.0	1392.4
168	60	1600	NBBPSC	8	97	354.7	255.1	54.0	171.0	319.7	454.4	1449.9
168	60	1600	NBBPSC	9	80	304.0	209.5	33.6	142.0	277.4	400.2	1167.0
168	60	1600	NBBPSC	10	95	312.2	225.1	13.0	132.3	270.9	452.4	1110.7
168	60	1600	NBBPSC	11	88	335.4	240.1	10.4	164.7	293.2	417.8	1347.4
168	60	1600	NBBPSC	12	6	247.7	135.8	38.8	179.7	281.0	303.8	427.8
169	80	400	NBBPSC	1	167	21.2	18.8	0.0	2.8	18.7	36.1	90.3
169	80	400	NBBPSC	2	46	25.3	19.7	0.4	9.9	18.3	39.0	61.0
169	80	400	NBBPSC	3	65	22.0	17.5	0.2	7.7	21.5	35.2	60.7
169	80	400	NBBPSC	4	63	27.1	22.8	0.4	4.7	23.0	46.8	76.6
169	80	400	NBBPSC	5	68	23.6	19.7	0.0	3.0	23.9	38.6	77.1
169	80	400	NBBPSC	6	60	24.9	22.3	0.0	6.7	20.8	37.3	82.0
169	80	400	NBBPSC	7	67	22.6	21.5	0.0	2.0	20.2	36.7	86.0
169	80	400	NBBPSC	8	70	23.1	19.7	0.0	2.8	19.9	38.9	68.3
169	80	400	NBBPSC	9	70	25.5	21.0	0.0	6.7	24.3	38.7	93.2
169	80	400	NBBPSC	10	65	27.5	20.5	0.4	10.4	28.2	42.5	73.9
169	80	400	NBBPSC	11	61	24.1	17.4	0.4	7.5	23.9	38.4	63.9
169	80	400	NBBPSC	12	5	13.2	22.6	0.0	0.2	0.4	12.9	52.4
170	80	400	NBBPSC	1	143	23.7	19.8	0.0	5.1	23.2	36.3	80.7
170	80	400	NBBPSC	2	52	23.4	17.9	0.0	7.7	20.9	41.0	56.8
170	80	400	NBBPSC	3	61	28.1	21.5	0.0	8.8	26.5	45.0	76.9
170	80	400	NBBPSC	4	47	20.2	19.8	0.0	1.0	15.6	31.6	92.4
170	80	400	NBBPSC	5	76	22.0	19.7	0.0	2.5	18.5	38.0	69.2
170	80	400	NBBPSC	6	86	25.9	19.9	0.0	9.7	24.2	37.9	79.7
170	80	400	NBBPSC	7	55	24.4	26.0	0.0	1.6	17.0	41.5	99.7
170	80	400	NBBPSC	8	69	23.7	20.8	0.0	2.2	22.2	37.2	93.8
170	80	400	NBBPSC	9	51	24.5	19.6	0.4	7.6	21.8	35.0	70.8
170	80	400	NBBPSC	10	59	28.1	18.4	0.4	12.8	25.9	39.3	72.8
170	80	400	NBBPSC	11	70	27.4	22.8	0.4	9.5	20.7	43.1	102.6
170	80	400	NBBPSC	12	6	25.8	11.5	12.5	16.7	25.3	34.4	40.5
171	80	400	NBBPSC	1	140	23.2	20.0	0.0	4.7	20.7	33.5	104.2
171	80	400	NBBPSC	2	63	22.1	21.0	0.0	1.7	19.2	38.4	64.2
171	80	400	NBBPSC	3	61	23.5	20.6	0.0	3.1	20.4	38.2	77.5
171	80	400	NBBPSC	4	52	25.6	18.8	0.5	11.3	22.5	38.1	66.1
171	80	400	NBBPSC	5	68	20.5	19.2	0.0	5.0	16.2	32.9	72.3
171	80	400	NBBPSC	6	59	23.4	18.4	0.4	4.4	22.2	34.8	82.0
171	80	400	NBBPSC	7	70	23.7	17.7	0.0	5.0	22.3	40.0	63.0
171	80	400	NBBPSC	8	80	27.7	20.1	0.0	12.0	26.5	42.6	80.2
171	80	400	NBBPSC	9	58	22.8	20.5	0.0	3.4	22.4	36.3	87.6
171	80	400	NBBPSC	10	64	25.0	20.1	0.0	4.3	22.1	41.5	63.9
171	80	400	NBBPSC	11	57	26.2	22.1	0.0	8.5	22.2	37.3	87.3
171	80	400	NBBPSC	12	4	8.4	5.9	4.9	5.1	5.8	9.1	17.2
172	80	600	NBBPSC	1	226	27.3	21.8	0.0	6.0	27.0	42.8	96.3
172	80	600	NBBPSC	2	63	28.6	23.8	0.0	8.0	27.4	43.2	100.6
172	80	600	NBBPSC	3	83	31.8	21.8	0.3	15.3	34.2	45.9	106.1
172	80	600	NBBPSC	4	77	30.5	25.4	0.0	3.6	29.4	47.9	95.1
172	80	600	NBBPSC	5	83	31.1	22.0	0.0	12.5	31.3	49.4	71.3
172	80	600	NBBPSC	6	74	33.0	26.3	0.0	8.9	30.5	50.1	96.0
172	80	600	NBBPSC	7	81	32.5	25.0	0.0	12.5	31.6	49.4	100.6
172	80	600	NBBPSC	8	81	29.2	21.0	0.3	13.2	25.1	39.4	85.9
172	80	600	NBBPSC	9	84	26.4	24.1	0.2	4.6	20.9	42.5	121.4
172	80	600	NBBPSC	10	86	29.4	24.2	0.0	8.6	24.0	46.5	111.9
172	80	600	NBBPSC	11	76	37.1	22.0	1.4	21.0	35.4	49.9	97.6
172	80	600	NBBPSC	12	8	27.2	21.2	1.0	14.9	28.9	34.2	66.0

173	80	600	NBBPSC	1	186	28.7	22.0	0.0	9.3	27.5	42.6	95.8
173	80	600	NBBPSC	2	69	32.0	21.4	0.5	17.0	26.4	44.1	87.9
173	80	600	NBBPSC	3	80	22.6	21.3	0.0	2.1	16.7	37.7	77.1
173	80	600	NBBPSC	4	55	29.9	21.8	0.2	15.2	28.5	40.4	87.2
173	80	600	NBBPSC	5	93	29.4	24.2	0.3	5.5	26.8	47.5	81.0
173	80	600	NBBPSC	6	107	27.6	21.3	0.0	7.5	25.6	43.4	97.7
173	80	600	NBBPSC	7	59	32.0	25.7	0.3	7.0	33.8	48.8	100.5
173	80	600	NBBPSC	8	87	29.1	21.4	0.0	11.1	25.7	44.2	88.9
173	80	600	NBBPSC	9	71	32.4	24.0	0.0	12.7	29.2	46.5	102.2
173	80	600	NBBPSC	10	79	33.5	25.2	0.2	12.0	30.9	51.9	97.7
173	80	600	NBBPSC	11	91	36.3	26.0	0.5	12.5	36.1	55.6	113.4
173	80	600	NBBPSC	12	9	21.7	15.1	0.3	8.1	22.2	35.4	42.9
174	80	600	NBBPSC	1	173	26.6	23.1	0.0	4.4	24.9	39.7	104.0
174	80	600	NBBPSC	2	82	28.0	20.3	0.4	10.0	25.9	41.4	76.2
174	80	600	NBBPSC	3	74	30.8	26.9	0.0	8.6	23.5	48.7	102.1
174	80	600	NBBPSC	4	61	34.9	22.9	0.5	17.7	31.6	54.4	80.0
174	80	600	NBBPSC	5	86	25.9	21.7	0.0	8.9	22.7	38.7	106.4
174	80	600	NBBPSC	6	76	30.3	23.6	0.0	10.0	27.8	43.6	100.8
174	80	600	NBBPSC	7	84	29.3	24.8	0.0	6.6	24.1	49.1	86.2
174	80	600	NBBPSC	8	98	31.2	23.0	0.0	11.6	28.4	47.6	95.0
174	80	600	NBBPSC	9	75	30.8	26.0	0.0	5.1	30.2	49.4	86.6
174	80	600	NBBPSC	10	74	31.7	25.9	0.4	8.4	28.2	49.4	93.5
174	80	600	NBBPSC	11	73	31.1	26.6	0.0	9.9	28.2	45.1	118.3
174	80	600	NBBPSC	12	6	18.8	19.5	1.0	5.4	15.4	22.5	54.1
175	80	800	NBBPSC	1	262	34.7	27.1	0.0	12.4	30.4	52.0	139.0
175	80	800	NBBPSC	2	80	36.3	27.4	0.1	13.0	31.6	53.6	120.0
175	80	800	NBBPSC	3	100	40.8	31.3	0.0	15.5	34.1	61.2	137.3
175	80	800	NBBPSC	4	93	34.8	23.4	0.0	16.0	35.3	45.9	92.0
175	80	800	NBBPSC	5	102	34.7	28.1	0.0	10.4	30.9	56.1	101.4
175	80	800	NBBPSC	6	99	37.2	25.7	0.0	13.7	38.9	57.7	97.9
175	80	800	NBBPSC	7	97	43.0	28.7	0.5	18.1	39.9	62.1	123.7
175	80	800	NBBPSC	8	90	40.7	28.3	0.4	18.6	35.5	60.0	125.6
175	80	800	NBBPSC	9	100	41.0	28.0	0.0	19.7	39.8	58.7	143.8
175	80	800	NBBPSC	10	98	40.5	29.1	0.8	16.1	36.4	58.2	128.6
175	80	800	NBBPSC	11	102	38.2	23.9	0.7	21.1	34.1	52.0	113.1
175	80	800	NBBPSC	12	11	29.2	30.6	0.2	1.3	32.8	48.5	90.9
176	80	800	NBBPSC	1	218	29.4	22.6	0.3	10.4	24.6	45.8	105.1
176	80	800	NBBPSC	2	82	32.5	22.7	0.2	13.0	33.1	42.0	93.0
176	80	800	NBBPSC	3	96	29.6	20.1	0.0	12.8	29.2	44.6	80.5
176	80	800	NBBPSC	4	71	31.9	23.1	0.7	14.2	28.5	45.2	107.2
176	80	800	NBBPSC	5	103	33.6	23.1	0.0	14.6	31.6	48.5	97.6
176	80	800	NBBPSC	6	121	29.4	22.9	0.2	10.7	25.8	42.0	131.5
176	80	800	NBBPSC	7	77	33.5	21.8	0.3	14.9	34.2	43.0	95.1
176	80	800	NBBPSC	8	102	33.2	21.4	0.4	18.2	30.4	44.1	113.6
176	80	800	NBBPSC	9	82	36.6	23.3	0.0	15.2	37.8	55.9	87.0
176	80	800	NBBPSC	10	97	37.3	21.2	0.5	20.3	37.3	48.9	97.0
176	80	800	NBBPSC	11	105	39.6	27.6	0.2	17.1	35.8	55.2	120.9
176	80	800	NBBPSC	12	10	25.0	16.8	0.1	12.8	27.3	35.9	48.9
177	80	800	NBBPSC	1	202	35.7	29.5	0.0	13.5	30.3	52.6	124.2
177	80	800	NBBPSC	2	95	37.1	26.6	0.4	13.8	36.1	55.4	109.4
177	80	800	NBBPSC	3	85	36.9	29.1	0.2	16.4	35.1	44.9	112.6
177	80	800	NBBPSC	4	76	36.9	30.9	0.0	9.9	33.7	57.1	120.0
177	80	800	NBBPSC	5	105	36.7	25.2	0.6	21.1	33.3	47.0	115.5
177	80	800	NBBPSC	6	90	35.6	28.4	0.0	14.5	32.9	51.4	111.3
177	80	800	NBBPSC	7	98	39.6	29.7	0.3	17.6	37.0	55.0	134.2
177	80	800	NBBPSC	8	116	39.2	31.3	0.0	17.5	33.5	52.3	142.0
177	80	800	NBBPSC	9	91	37.6	30.8	0.3	13.8	26.6	60.5	131.8
177	80	800	NBBPSC	10	85	41.4	32.9	0.0	16.0	38.5	53.7	148.1
177	80	800	NBBPSC	11	91	35.0	27.2	0.0	14.6	32.9	51.1	125.3
177	80	800	NBBPSC	12	7	28.4	21.2	0.0	14.6	25.4	43.7	56.8
178	80	1000	NBBPSC	1	296	56.9	35.5	0.0	27.6	53.5	83.3	158.0

178	80	1000	NBBPSC	2	95	64.3	38.3	0.7	31.1	63.8	94.3	175.1
178	80	1000	NBBPSC	3	122	63.5	41.5	0.5	26.1	60.5	95.6	151.9
178	80	1000	NBBPSC	4	112	61.2	39.1	0.3	25.4	59.4	87.6	164.1
178	80	1000	NBBPSC	5	116	63.6	36.8	0.0	34.6	63.0	89.3	143.6
178	80	1000	NBBPSC	6	118	62.9	40.3	0.3	34.4	59.9	89.6	194.9
178	80	1000	NBBPSC	7	110	68.5	36.4	0.3	46.6	72.1	97.1	142.7
178	80	1000	NBBPSC	8	106	61.0	37.4	2.1	30.6	58.4	80.6	144.8
178	80	1000	NBBPSC	9	111	59.0	39.9	0.4	23.7	54.0	84.7	152.1
178	80	1000	NBBPSC	10	116	68.9	36.7	1.6	38.0	69.9	94.8	154.0
178	80	1000	NBBPSC	11	118	62.7	34.9	1.0	37.1	61.5	84.8	171.8
178	80	1000	NBBPSC	12	12	49.3	36.7	0.7	30.1	37.7	65.3	130.2
179	80	1000	NBBPSC	1	253	43.5	32.9	0.0	20.9	37.2	60.0	214.0
179	80	1000	NBBPSC	2	96	43.7	36.3	1.1	17.9	33.5	66.1	173.0
179	80	1000	NBBPSC	3	117	44.6	35.9	0.3	16.8	36.1	64.6	212.7
179	80	1000	NBBPSC	4	82	42.0	35.1	0.0	15.1	35.6	55.5	138.5
179	80	1000	NBBPSC	5	119	43.3	36.4	0.0	15.1	35.3	63.3	159.2
179	80	1000	NBBPSC	6	133	42.3	32.1	0.2	17.5	37.4	59.2	166.4
179	80	1000	NBBPSC	7	97	44.0	31.1	0.3	21.3	38.4	62.5	149.3
179	80	1000	NBBPSC	8	125	47.3	38.6	0.4	18.9	40.1	66.5	235.1
179	80	1000	NBBPSC	9	99	48.0	34.8	0.0	21.6	39.1	65.5	152.0
179	80	1000	NBBPSC	10	110	49.5	33.5	1.4	25.9	44.5	68.4	153.2
179	80	1000	NBBPSC	11	121	53.8	43.0	0.5	16.3	45.8	78.2	200.4
179	80	1000	NBBPSC	12	14	32.1	28.4	0.9	15.0	23.4	40.9	100.2
180	80	1000	NBBPSC	1	241	48.3	32.8	0.2	22.5	44.0	70.3	167.1
180	80	1000	NBBPSC	2	110	49.8	34.8	0.4	22.0	48.3	70.7	153.1
180	80	1000	NBBPSC	3	107	43.4	32.2	0.0	21.4	36.1	63.4	145.1
180	80	1000	NBBPSC	4	96	49.6	36.5	0.1	24.5	42.4	73.2	150.4
180	80	1000	NBBPSC	5	118	46.5	28.1	0.3	24.7	44.4	67.8	118.9
180	80	1000	NBBPSC	6	110	52.7	33.4	0.1	22.4	55.6	75.6	154.9
180	80	1000	NBBPSC	7	108	52.2	35.6	0.5	24.9	50.2	78.3	153.3
180	80	1000	NBBPSC	8	134	51.7	35.7	0.4	20.2	52.6	78.3	145.8
180	80	1000	NBBPSC	9	108	55.2	39.0	0.1	19.2	56.4	81.7	154.5
180	80	1000	NBBPSC	10	93	54.2	38.2	0.0	21.9	53.0	82.1	159.0
180	80	1000	NBBPSC	11	104	45.9	34.5	1.1	20.5	39.3	64.9	159.4
180	80	1000	NBBPSC	12	7	29.6	24.1	0.2	10.9	25.1	47.9	64.2
181	80	1200	NBBPSC	1	311	149.4	103.4	0.3	67.6	129.3	216.2	501.5
181	80	1200	NBBPSC	2	104	144.3	100.7	0.6	61.6	128.0	210.0	439.2
181	80	1200	NBBPSC	3	134	150.0	107.0	0.4	60.4	132.8	219.7	430.3
181	80	1200	NBBPSC	4	119	154.0	104.4	0.2	65.4	129.1	228.5	424.1
181	80	1200	NBBPSC	5	127	149.8	107.3	0.3	76.3	131.2	206.8	486.6
181	80	1200	NBBPSC	6	126	145.0	104.3	1.9	66.5	126.5	187.7	474.1
181	80	1200	NBBPSC	7	113	141.2	103.0	5.4	70.9	115.0	195.3	522.7
181	80	1200	NBBPSC	8	118	137.1	96.6	3.3	63.8	115.4	191.5	464.6
181	80	1200	NBBPSC	9	119	112.3	88.6	0.3	54.4	100.1	138.0	509.1
181	80	1200	NBBPSC	10	127	129.2	99.6	1.2	59.4	114.4	162.4	514.2
181	80	1200	NBBPSC	11	128	134.2	91.4	6.0	68.7	122.1	172.2	473.0
181	80	1200	NBBPSC	12	11	98.3	77.7	0.5	22.9	109.4	152.3	228.6
182	80	1200	NBBPSC	1	290	67.1	45.9	0.0	29.8	64.6	93.4	244.8
182	80	1200	NBBPSC	2	112	64.1	43.8	0.3	30.3	57.6	88.9	202.1
182	80	1200	NBBPSC	3	138	73.3	52.9	0.3	26.9	70.1	108.2	239.5
182	80	1200	NBBPSC	4	99	64.2	48.2	0.2	28.9	52.8	99.5	234.3
182	80	1200	NBBPSC	5	133	74.0	49.5	0.1	32.3	77.9	106.5	270.4
182	80	1200	NBBPSC	6	151	69.0	50.8	1.0	32.6	59.9	97.3	297.9
182	80	1200	NBBPSC	7	111	70.2	47.8	0.3	32.7	69.7	92.2	213.2
182	80	1200	NBBPSC	8	142	76.2	47.5	0.8	41.8	77.1	104.6	235.1
182	80	1200	NBBPSC	9	117	68.8	47.0	1.3	32.8	56.0	102.3	247.0
182	80	1200	NBBPSC	10	125	72.8	50.5	1.2	26.0	71.3	108.6	203.1
182	80	1200	NBBPSC	11	138	74.0	44.1	1.5	39.3	68.5	99.5	200.4
182	80	1200	NBBPSC	12	20	58.5	40.3	7.5	29.4	54.6	76.5	144.3
183	80	1200	NBBPSC	1	290	65.4	39.0	0.0	37.0	62.7	91.8	222.6
183	80	1200	NBBPSC	2	132	63.6	40.0	0.3	30.7	63.4	87.1	172.2

183	80	1200	NBBPSC	3	127	63.8	41.3	0.0	32.8	59.2	89.5	198.4
183	80	1200	NBBPSC	4	110	64.0	45.5	0.6	21.3	57.0	99.3	185.1
183	80	1200	NBBPSC	5	127	67.6	39.5	0.0	35.7	68.6	95.7	163.4
183	80	1200	NBBPSC	6	127	63.6	44.5	0.3	27.1	65.7	86.5	200.9
183	80	1200	NBBPSC	7	119	70.7	48.7	0.9	33.4	72.5	100.7	294.2
183	80	1200	NBBPSC	8	146	76.1	49.6	0.4	34.2	74.9	103.6	264.0
183	80	1200	NBBPSC	9	126	67.3	41.9	0.0	29.2	69.3	98.5	180.6
183	80	1200	NBBPSC	10	105	71.6	45.5	2.4	37.9	66.2	98.1	223.4
183	80	1200	NBBPSC	11	117	65.5	41.6	0.4	25.7	60.5	99.4	168.6
183	80	1200	NBBPSC	12	8	53.9	37.6	2.5	35.0	51.4	67.1	125.4
184	80	1400	NBBPSC	1	306	330.5	253.1	5.5	159.2	257.2	446.1	1232.5
184	80	1400	NBBPSC	2	107	315.1	200.9	0.3	169.4	287.8	420.8	1151.5
184	80	1400	NBBPSC	3	128	322.3	236.6	2.7	162.1	287.7	401.4	1307.4
184	80	1400	NBBPSC	4	121	320.7	229.3	11.8	160.7	277.6	447.4	1147.3
184	80	1400	NBBPSC	5	120	301.4	243.0	1.6	150.7	237.7	398.9	1302.9
184	80	1400	NBBPSC	6	129	296.0	211.2	17.1	161.3	260.4	381.3	1038.0
184	80	1400	NBBPSC	7	115	297.2	218.6	10.5	119.1	237.0	441.3	1172.5
184	80	1400	NBBPSC	8	121	314.2	225.8	1.4	111.9	296.4	447.7	1175.8
184	80	1400	NBBPSC	9	119	261.1	180.5	2.8	96.2	220.9	407.0	709.2
184	80	1400	NBBPSC	10	120	275.2	206.6	1.2	103.5	253.2	386.5	1075.1
184	80	1400	NBBPSC	11	127	281.8	196.5	6.0	105.5	274.2	386.4	1173.5
184	80	1400	NBBPSC	12	14	314.0	193.5	0.3	152.2	367.1	454.9	519.8
185	80	1400	NBBPSC	1	300	187.1	118.6	0.3	99.6	183.7	244.3	744.8
185	80	1400	NBBPSC	2	121	190.9	130.0	0.3	90.6	189.7	254.1	747.5
185	80	1400	NBBPSC	3	145	203.1	122.9	0.4	103.2	200.1	280.7	681.0
185	80	1400	NBBPSC	4	106	203.1	138.2	1.0	105.5	173.6	259.7	734.4
185	80	1400	NBBPSC	5	133	192.6	122.9	0.9	107.8	159.2	269.5	635.6
185	80	1400	NBBPSC	6	152	183.8	141.5	6.4	72.4	155.6	249.3	709.9
185	80	1400	NBBPSC	7	113	197.1	129.7	1.6	110.5	175.6	256.2	675.6
185	80	1400	NBBPSC	8	149	172.0	112.2	13.3	80.2	160.4	246.9	663.0
185	80	1400	NBBPSC	9	118	184.9	137.4	6.0	88.2	163.0	228.0	695.7
185	80	1400	NBBPSC	10	127	177.4	125.6	5.4	95.2	145.4	218.0	678.3
185	80	1400	NBBPSC	11	142	175.4	126.7	0.8	85.3	143.7	232.9	705.4
185	80	1400	NBBPSC	12	20	201.0	124.6	6.5	101.7	216.6	272.8	455.6
186	80	1400	NBBPSC	1	292	250.4	167.1	2.3	136.3	237.3	306.0	893.4
186	80	1400	NBBPSC	2	132	234.6	158.8	19.2	134.5	203.5	296.7	948.5
186	80	1400	NBBPSC	3	126	215.3	158.8	1.8	103.1	199.7	287.6	911.8
186	80	1400	NBBPSC	4	114	209.5	138.7	5.4	108.6	198.5	286.2	799.9
186	80	1400	NBBPSC	5	128	213.6	156.0	3.8	102.2	194.0	280.7	755.8
186	80	1400	NBBPSC	6	127	215.9	127.4	0.3	124.2	203.9	291.2	768.0
186	80	1400	NBBPSC	7	124	218.0	176.8	4.3	97.7	179.9	280.4	969.6
186	80	1400	NBBPSC	8	148	225.3	160.5	5.7	115.1	216.3	299.1	883.3
186	80	1400	NBBPSC	9	131	223.9	164.3	2.4	101.9	204.1	292.8	860.0
186	80	1400	NBBPSC	10	108	205.8	152.5	5.7	86.3	189.7	292.6	920.3
186	80	1400	NBBPSC	11	119	202.7	138.6	1.1	90.5	187.5	273.8	787.3
186	80	1400	NBBPSC	12	7	264.8	273.5	17.7	123.7	190.6	275.6	846.7
187	80	1600	NBBPSC	1	294	476.4	333.7	14.7	247.0	396.8	665.4	1726.7
187	80	1600	NBBPSC	2	106	452.9	279.9	7.4	239.0	432.7	632.5	1657.9
187	80	1600	NBBPSC	3	132	465.0	309.9	31.3	215.4	434.0	640.8	1686.1
187	80	1600	NBBPSC	4	116	467.5	339.3	14.6	216.7	417.3	651.0	1692.3
187	80	1600	NBBPSC	5	119	402.9	298.5	3.8	189.9	348.8	528.4	1471.7
187	80	1600	NBBPSC	6	126	444.8	293.6	3.0	205.7	437.7	603.4	1711.5
187	80	1600	NBBPSC	7	114	484.5	387.1	11.5	205.1	399.7	647.0	1727.4
187	80	1600	NBBPSC	8	122	494.3	349.5	6.5	195.0	466.5	682.9	1650.3
187	80	1600	NBBPSC	9	117	370.9	278.9	9.7	133.7	350.1	536.0	1346.4
187	80	1600	NBBPSC	10	118	410.9	295.4	14.5	179.6	387.6	567.9	1593.2
187	80	1600	NBBPSC	11	132	406.0	237.2	12.0	198.0	414.6	585.0	1000.4
187	80	1600	NBBPSC	12	14	420.4	236.7	18.7	267.1	469.1	623.5	708.8
188	80	1600	NBBPSC	1	287	395.5	282.3	0.2	188.7	351.2	543.1	1510.2
188	80	1600	NBBPSC	2	116	376.0	237.8	0.6	225.4	320.8	516.8	1244.1
188	80	1600	NBBPSC	3	140	437.4	310.9	1.6	197.7	421.0	582.2	1416.9

188	80	1600	NBBPSC	4	102	405.2	248.3	24.2	231.4	397.5	551.5	1416.7
188	80	1600	NBBPSC	5	125	420.1	295.4	5.8	238.7	360.4	565.8	1443.4
188	80	1600	NBBPSC	6	146	381.0	323.0	6.8	129.6	304.5	503.3	1639.2
188	80	1600	NBBPSC	7	108	426.9	308.9	16.6	207.5	381.7	537.9	1619.2
188	80	1600	NBBPSC	8	144	358.2	228.6	0.5	193.7	328.9	497.2	1323.3
188	80	1600	NBBPSC	9	114	370.3	259.5	22.0	152.3	365.1	501.5	1476.4
188	80	1600	NBBPSC	10	119	342.3	225.3	9.1	153.1	300.5	473.2	935.1
188	80	1600	NBBPSC	11	132	370.1	235.9	0.8	166.3	362.4	511.6	1094.5
188	80	1600	NBBPSC	12	20	363.2	226.9	24.0	188.0	405.6	536.1	760.5
189	80	1600	NBBPSC	1	304	383.7	257.2	1.7	206.5	352.8	502.6	1540.1
189	80	1600	NBBPSC	2	132	352.4	247.3	5.2	210.5	320.4	437.5	1543.8
189	80	1600	NBBPSC	3	122	288.5	181.8	24.5	124.9	288.3	370.9	888.3
189	80	1600	NBBPSC	4	119	356.7	230.9	3.4	201.7	319.6	499.6	1226.8
189	80	1600	NBBPSC	5	133	334.2	262.7	2.8	162.3	271.0	440.7	1483.7
189	80	1600	NBBPSC	6	127	352.9	243.8	5.0	178.0	299.9	470.7	1252.1
189	80	1600	NBBPSC	7	126	304.4	192.9	18.9	141.5	316.0	422.0	1063.3
189	80	1600	NBBPSC	8	152	331.7	222.7	17.7	167.9	293.8	453.6	1392.4
189	80	1600	NBBPSC	9	132	337.6	233.8	33.6	164.2	319.3	436.3	1449.9
189	80	1600	NBBPSC	10	110	322.7	239.1	36.2	139.5	279.9	445.1	1167.0
189	80	1600	NBBPSC	11	118	320.8	230.7	10.4	144.7	289.8	421.6	1347.4
189	80	1600	NBBPSC	12	6	247.7	135.8	38.8	179.7	281.0	303.8	427.8
190	100	400	NBBPSC	1	5	30.9	12.1	13.8	23.0	35.5	40.5	41.7
190	100	400	NBBPSC	2	77	17.9	17.6	0.0	1.9	12.9	32.5	90.3
190	100	400	NBBPSC	3	84	23.4	19.9	0.0	3.7	20.5	40.5	68.9
190	100	400	NBBPSC	4	70	23.4	18.1	0.2	9.8	17.4	35.8	61.0
190	100	400	NBBPSC	5	76	24.7	20.4	0.2	3.8	22.8	38.4	72.7
190	100	400	NBBPSC	6	83	26.2	20.9	0.0	5.9	25.8	41.9	77.1
190	100	400	NBBPSC	7	76	23.2	21.9	0.0	3.3	20.1	35.8	82.0
190	100	400	NBBPSC	8	83	23.3	21.7	0.0	1.8	20.9	37.8	86.0
190	100	400	NBBPSC	9	88	23.7	19.5	0.0	3.3	21.7	34.9	76.5
190	100	400	NBBPSC	10	82	26.8	20.9	0.0	7.4	23.4	42.1	93.2
190	100	400	NBBPSC	11	80	24.5	18.4	0.4	8.0	23.4	38.7	73.9
190	100	400	NBBPSC	12	5	13.2	22.6	0.0	0.2	0.4	12.9	52.4
191	100	400	NBBPSC	2	68	24.7	20.6	0.4	7.6	23.7	35.0	80.7
191	100	400	NBBPSC	3	75	23.0	20.2	0.0	1.5	22.7	36.3	77.6
191	100	400	NBBPSC	4	63	24.3	18.0	0.0	7.9	22.9	42.1	56.8
191	100	400	NBBPSC	5	75	24.8	20.7	0.0	5.6	22.2	37.2	76.9
191	100	400	NBBPSC	6	85	22.1	21.2	0.0	1.7	16.0	39.1	92.4
191	100	400	NBBPSC	7	102	25.3	19.4	0.0	9.4	23.8	37.6	79.7
191	100	400	NBBPSC	8	71	26.1	24.0	0.0	2.4	21.4	42.7	99.7
191	100	400	NBBPSC	9	84	21.3	20.2	0.0	2.7	19.3	32.8	93.8
191	100	400	NBBPSC	10	67	29.1	19.2	0.4	13.4	29.0	42.6	70.8
191	100	400	NBBPSC	11	82	27.0	22.4	0.4	10.3	21.4	42.5	102.6
191	100	400	NBBPSC	12	6	25.8	11.5	12.5	16.7	25.3	34.4	40.5
192	100	400	NBBPSC	1	3	23.9	3.2	20.2	22.9	25.5	25.8	26.1
192	100	400	NBBPSC	2	63	20.6	20.2	0.0	4.1	16.1	26.3	104.2
192	100	400	NBBPSC	3	70	24.8	20.2	0.3	6.1	23.7	35.5	79.7
192	100	400	NBBPSC	4	81	22.5	20.7	0.0	2.2	19.4	37.0	77.5
192	100	400	NBBPSC	5	74	26.2	20.8	0.1	5.1	24.1	39.3	74.2
192	100	400	NBBPSC	6	77	19.9	17.2	0.0	3.9	17.3	32.0	67.4
192	100	400	NBBPSC	7	77	23.7	19.1	0.0	6.0	21.7	33.9	82.0
192	100	400	NBBPSC	8	84	23.4	18.3	0.0	4.6	21.7	40.1	63.0
192	100	400	NBBPSC	9	90	27.7	19.1	0.0	12.7	26.5	39.7	80.2
192	100	400	NBBPSC	10	80	23.9	21.4	0.0	3.0	20.5	38.8	87.6
192	100	400	NBBPSC	11	74	25.7	21.7	0.0	6.1	21.3	40.2	87.3
192	100	400	NBBPSC	12	4	8.4	5.9	4.9	5.1	5.8	9.1	17.2
193	100	600	NBBPSC	1	7	23.5	20.0	1.9	8.7	15.4	36.8	56.1
193	100	600	NBBPSC	2	111	26.6	22.9	0.0	3.3	24.6	44.0	91.0
193	100	600	NBBPSC	3	104	29.3	22.0	0.0	10.2	29.6	42.9	96.3
193	100	600	NBBPSC	4	95	29.1	22.3	0.0	8.0	28.2	43.7	100.6
193	100	600	NBBPSC	5	96	30.9	22.3	0.3	14.9	31.7	46.2	106.1

193	100	600	NBBPSC	6	98	30.9	25.2	0.0	2.9	30.8	50.5	95.1
193	100	600	NBBPSC	7	98	33.6	25.1	0.0	12.6	32.0	51.1	96.0
193	100	600	NBBPSC	8	101	31.7	24.4	0.0	12.5	29.2	47.5	100.6
193	100	600	NBBPSC	9	102	27.2	21.2	0.3	10.0	23.0	42.0	89.7
193	100	600	NBBPSC	10	104	29.3	23.9	0.0	8.0	25.0	43.9	121.4
193	100	600	NBBPSC	11	100	34.7	24.0	0.6	17.3	32.5	49.3	111.9
193	100	600	NBBPSC	12	8	27.2	21.2	1.0	14.9	28.9	34.2	66.0
194	100	600	NBBPSC	1	1	9.2	N/A	9.2	9.2	9.2	9.2	9.2
194	100	600	NBBPSC	2	89	28.8	21.0	0.0	14.2	28.2	40.8	95.8
194	100	600	NBBPSC	3	97	28.3	22.7	0.0	7.4	24.2	43.9	84.8
194	100	600	NBBPSC	4	86	30.9	22.5	0.0	13.6	24.7	44.2	87.9
194	100	600	NBBPSC	5	88	26.1	21.5	0.0	5.4	26.1	40.1	77.3
194	100	600	NBBPSC	6	105	28.4	23.6	0.2	4.9	26.8	46.8	87.2
194	100	600	NBBPSC	7	128	27.7	21.6	0.0	7.1	25.3	43.6	97.7
194	100	600	NBBPSC	8	83	32.3	24.4	0.3	8.9	34.4	49.0	100.5
194	100	600	NBBPSC	9	105	29.4	23.2	0.0	9.6	23.6	43.8	102.2
194	100	600	NBBPSC	10	87	35.7	23.5	0.2	14.9	33.4	53.7	97.7
194	100	600	NBBPSC	11	112	33.9	26.2	0.5	8.2	33.7	53.3	113.4
194	100	600	NBBPSC	12	9	21.7	15.1	0.3	8.1	22.2	35.4	42.9
195	100	600	NBBPSC	1	3	15.1	13.1	0.2	10.1	19.9	22.5	25.1
195	100	600	NBBPSC	2	80	27.3	24.6	0.0	4.6	23.7	43.6	104.0
195	100	600	NBBPSC	3	86	25.3	21.7	0.1	4.3	25.2	36.9	94.9
195	100	600	NBBPSC	4	104	29.7	22.5	0.0	10.1	26.7	41.8	101.3
195	100	600	NBBPSC	5	91	30.1	23.5	0.0	12.0	24.2	42.6	102.1
195	100	600	NBBPSC	6	93	29.7	23.9	0.0	10.0	24.4	43.3	106.4
195	100	600	NBBPSC	7	99	29.0	23.4	0.0	7.6	27.2	44.0	100.8
195	100	600	NBBPSC	8	100	30.4	24.1	0.0	9.6	25.5	48.1	86.2
195	100	600	NBBPSC	9	115	32.7	24.5	0.0	10.6	31.9	50.1	95.0
195	100	600	NBBPSC	10	97	29.8	26.2	0.0	3.2	26.8	45.8	93.5
195	100	600	NBBPSC	11	91	30.3	25.8	0.0	10.1	26.6	43.8	118.3
195	100	600	NBBPSC	12	6	18.8	19.5	1.0	5.4	15.4	22.5	54.1
196	100	800	NBBPSC	1	7	39.0	27.1	2.0	21.3	33.5	62.4	70.4
196	100	800	NBBPSC	2	129	33.4	27.4	0.0	12.6	28.5	50.6	139.0
196	100	800	NBBPSC	3	122	37.1	27.5	0.0	13.0	35.3	55.2	105.3
196	100	800	NBBPSC	4	117	35.2	26.9	0.0	12.4	31.2	53.0	120.0
196	100	800	NBBPSC	5	118	40.3	29.5	0.0	17.9	36.1	58.9	137.3
196	100	800	NBBPSC	6	119	35.6	27.2	0.0	13.7	31.3	57.1	101.4
196	100	800	NBBPSC	7	129	35.5	25.4	0.0	13.4	35.8	55.0	98.5
196	100	800	NBBPSC	8	119	42.1	28.1	0.5	18.0	37.1	59.9	123.7
196	100	800	NBBPSC	9	116	40.2	29.1	0.4	18.2	34.4	59.6	143.8
196	100	800	NBBPSC	10	121	43.4	27.9	0.0	20.3	43.8	60.8	128.6
196	100	800	NBBPSC	11	130	37.3	25.2	0.7	18.0	33.2	51.8	113.1
196	100	800	NBBPSC	12	11	29.2	30.6	0.2	1.3	32.8	48.5	90.9
197	100	800	NBBPSC	1	2	11.0	14.7	0.6	5.8	11.0	16.2	21.4
197	100	800	NBBPSC	2	101	30.2	23.8	0.3	8.6	29.7	46.1	105.1
197	100	800	NBBPSC	3	114	29.8	21.6	0.5	12.1	24.6	45.8	104.9
197	100	800	NBBPSC	4	106	31.3	22.1	0.2	12.8	32.1	41.7	93.0
197	100	800	NBBPSC	5	109	29.0	19.9	0.0	12.7	27.6	45.0	80.5
197	100	800	NBBPSC	6	120	33.5	24.1	0.0	14.3	31.3	47.1	107.2
197	100	800	NBBPSC	7	143	30.4	22.9	0.2	13.4	28.0	42.9	131.5
197	100	800	NBBPSC	8	105	35.0	20.9	0.3	20.5	34.9	44.2	95.1
197	100	800	NBBPSC	9	119	32.5	23.0	0.0	14.3	28.3	49.3	113.6
197	100	800	NBBPSC	10	105	38.7	20.9	0.3	23.7	40.4	50.9	87.0
197	100	800	NBBPSC	11	134	38.3	26.8	0.2	16.6	35.0	53.2	120.9
197	100	800	NBBPSC	12	10	25.0	16.8	0.1	12.8	27.3	35.9	48.9
198	100	800	NBBPSC	1	5	8.6	11.5	0.0	0.8	0.9	15.7	25.5
198	100	800	NBBPSC	2	94	36.1	27.9	0.4	16.0	29.2	54.0	123.4
198	100	800	NBBPSC	3	100	37.3	31.0	0.3	13.0	32.7	52.5	124.2
198	100	800	NBBPSC	4	120	38.1	28.0	0.4	14.0	36.0	55.9	112.6
198	100	800	NBBPSC	5	106	33.0	27.7	0.2	8.5	33.1	43.3	107.3
198	100	800	NBBPSC	6	116	39.2	28.4	0.0	20.3	36.5	56.9	120.0

198	100	800	NBBPSC	7	118	34.7	26.9	0.0	13.7	32.9	50.8	111.3
198	100	800	NBBPSC	8	119	39.9	28.7	0.3	19.0	38.8	56.1	134.2
198	100	800	NBBPSC	9	136	38.6	30.9	0.0	17.1	31.8	51.2	142.0
198	100	800	NBBPSC	10	111	38.4	33.3	0.0	12.6	29.2	57.6	148.1
198	100	800	NBBPSC	11	113	38.0	28.8	0.0	15.9	34.8	51.7	143.0
198	100	800	NBBPSC	12	7	28.4	21.2	0.0	14.6	25.4	43.7	56.8
199	100	1000	NBBPSC	1	9	47.8	27.3	11.4	32.4	43.4	63.9	96.5
199	100	1000	NBBPSC	2	145	53.4	34.5	0.0	25.8	48.8	77.4	158.0
199	100	1000	NBBPSC	3	137	60.9	37.0	0.3	31.6	61.9	85.7	154.2
199	100	1000	NBBPSC	4	138	63.6	38.4	0.5	29.0	61.2	94.7	175.1
199	100	1000	NBBPSC	5	145	62.7	40.4	0.3	27.4	60.9	93.5	164.1
199	100	1000	NBBPSC	6	141	62.5	38.8	0.0	25.8	62.6	88.9	162.8
199	100	1000	NBBPSC	7	149	63.4	38.9	0.0	35.3	62.3	89.3	194.9
199	100	1000	NBBPSC	8	136	65.8	36.6	0.3	39.9	66.1	95.5	142.7
199	100	1000	NBBPSC	9	134	60.7	39.1	0.6	29.9	55.5	82.3	149.1
199	100	1000	NBBPSC	10	140	67.3	37.5	0.4	35.5	68.2	94.2	154.0
199	100	1000	NBBPSC	11	150	62.7	35.5	1.0	35.8	61.1	86.9	171.8
199	100	1000	NBBPSC	12	12	49.3	36.7	0.7	30.1	37.7	65.3	130.2
200	100	1000	NBBPSC	1	2	9.1	8.2	3.4	6.2	9.1	12.0	14.9
200	100	1000	NBBPSC	2	125	43.6	31.5	0.4	21.9	38.9	59.0	158.8
200	100	1000	NBBPSC	3	125	44.7	34.8	0.0	19.8	37.4	64.0	214.0
200	100	1000	NBBPSC	4	127	43.1	34.3	0.3	17.9	33.9	65.4	173.0
200	100	1000	NBBPSC	5	133	42.7	36.3	0.0	15.9	34.4	56.5	212.7
200	100	1000	NBBPSC	6	132	46.1	36.9	0.0	17.6	40.3	65.1	150.0
200	100	1000	NBBPSC	7	161	41.1	32.3	0.2	15.5	35.4	57.9	166.4
200	100	1000	NBBPSC	8	130	46.1	34.4	0.3	21.3	40.8	63.4	235.1
200	100	1000	NBBPSC	9	148	46.6	36.7	0.0	19.0	38.8	65.7	193.6
200	100	1000	NBBPSC	10	120	50.9	33.9	0.9	26.9	46.4	69.2	153.2
200	100	1000	NBBPSC	11	154	51.1	40.9	0.5	16.0	43.9	77.1	200.4
200	100	1000	NBBPSC	12	14	32.1	28.4	0.9	15.0	23.4	40.9	100.2
201	100	1000	NBBPSC	1	6	30.1	38.1	0.5	4.2	11.3	51.3	91.1
201	100	1000	NBBPSC	2	109	47.9	34.2	0.2	21.7	42.8	70.3	152.9
201	100	1000	NBBPSC	3	125	48.9	31.0	0.4	25.7	45.2	69.6	167.1
201	100	1000	NBBPSC	4	146	49.5	34.8	0.3	23.9	41.4	70.5	153.1
201	100	1000	NBBPSC	5	131	44.0	33.2	0.0	20.5	36.3	63.9	150.4
201	100	1000	NBBPSC	6	130	48.8	31.4	0.1	26.9	44.1	71.9	126.0
201	100	1000	NBBPSC	7	144	51.1	32.3	0.1	24.1	53.4	70.9	154.9
201	100	1000	NBBPSC	8	134	52.3	35.8	0.4	22.8	53.0	80.4	153.3
201	100	1000	NBBPSC	9	157	54.6	36.2	0.6	25.7	53.2	80.5	145.8
201	100	1000	NBBPSC	10	126	52.6	39.7	0.0	16.6	51.9	81.2	159.0
201	100	1000	NBBPSC	11	128	47.3	34.9	1.1	20.5	40.4	72.6	159.4
201	100	1000	NBBPSC	12	7	29.6	24.1	0.2	10.9	25.1	47.9	64.2
202	100	1200	NBBPSC	1	9	107.2	74.7	19.1	57.8	88.4	147.5	242.6
202	100	1200	NBBPSC	2	149	135.6	92.3	0.3	64.7	118.3	175.6	434.3
202	100	1200	NBBPSC	3	147	163.8	113.9	0.3	72.2	146.2	245.1	501.5
202	100	1200	NBBPSC	4	154	154.1	102.2	0.6	71.7	139.5	217.9	439.2
202	100	1200	NBBPSC	5	155	141.0	102.0	0.2	57.8	124.1	199.9	430.3
202	100	1200	NBBPSC	6	153	156.0	106.5	0.3	76.3	134.5	228.1	423.4
202	100	1200	NBBPSC	7	160	145.8	107.0	1.6	67.6	128.5	184.6	486.6
202	100	1200	NBBPSC	8	141	139.1	99.4	3.3	68.4	117.1	189.6	522.7
202	100	1200	NBBPSC	9	148	131.0	100.0	2.4	60.6	106.4	175.3	509.1
202	100	1200	NBBPSC	10	151	124.8	94.2	0.3	58.7	109.7	156.2	514.2
202	100	1200	NBBPSC	11	164	129.2	91.6	1.2	64.0	115.3	166.3	490.7
202	100	1200	NBBPSC	12	11	98.3	77.7	0.5	22.9	109.4	152.3	228.6
203	100	1200	NBBPSC	1	3	60.9	28.3	34.8	45.9	56.9	74.0	91.0
203	100	1200	NBBPSC	2	139	67.9	45.8	0.5	29.0	66.2	99.3	185.7
203	100	1200	NBBPSC	3	146	67.4	47.0	0.0	31.6	63.4	90.2	244.8
203	100	1200	NBBPSC	4	150	64.4	43.9	0.3	28.7	59.1	91.5	202.1
203	100	1200	NBBPSC	5	160	69.2	50.3	0.2	27.6	59.4	100.3	239.5
203	100	1200	NBBPSC	6	147	77.5	53.6	0.1	35.8	77.9	112.2	270.4
203	100	1200	NBBPSC	7	183	67.0	48.4	1.0	30.4	59.9	94.3	297.9

203	100	1200	NBBPSC	8	146	73.8	50.2	0.3	34.4	71.8	96.1	235.1
203	100	1200	NBBPSC	9	173	70.8	45.9	0.8	37.6	65.2	97.8	247.0
203	100	1200	NBBPSC	10	141	72.6	49.6	1.2	27.9	68.1	110.8	203.1
203	100	1200	NBBPSC	11	173	73.4	44.6	1.5	37.1	68.6	100.6	200.4
203	100	1200	NBBPSC	12	20	58.5	40.3	7.5	29.4	54.6	76.5	144.3
204	100	1200	NBBPSC	1	7	28.9	22.8	0.0	18.3	28.8	32.0	72.6
204	100	1200	NBBPSC	2	125	67.2	39.4	0.2	41.2	65.5	88.5	222.6
204	100	1200	NBBPSC	3	156	66.1	39.1	0.3	38.9	62.0	93.7	175.0
204	100	1200	NBBPSC	4	171	62.9	39.2	0.3	31.1	60.2	86.4	172.2
204	100	1200	NBBPSC	5	154	63.3	45.4	0.0	24.9	58.2	93.1	198.4
204	100	1200	NBBPSC	6	145	66.9	39.9	0.0	35.3	62.7	99.0	160.8
204	100	1200	NBBPSC	7	164	64.9	43.8	0.3	27.9	65.9	90.3	200.9
204	100	1200	NBBPSC	8	151	70.0	48.2	0.4	32.9	68.8	100.5	294.2
204	100	1200	NBBPSC	9	172	74.3	46.8	0.4	35.4	76.8	102.2	264.0
204	100	1200	NBBPSC	10	141	70.0	45.8	0.0	29.6	65.7	97.9	223.4
204	100	1200	NBBPSC	11	147	66.8	41.6	0.4	29.9	64.9	99.2	199.7
204	100	1200	NBBPSC	12	8	53.9	37.6	2.5	35.0	51.4	67.1	125.4
205	100	1400	NBBPSC	1	8	245.3	132.4	71.2	174.8	205.8	291.7	493.8
205	100	1400	NBBPSC	2	144	291.6	205.3	5.5	148.2	247.9	408.3	1189.1
205	100	1400	NBBPSC	3	148	370.2	293.3	9.9	161.6	295.8	508.5	1232.5
205	100	1400	NBBPSC	4	158	339.3	224.4	0.3	181.8	306.2	446.2	1307.4
205	100	1400	NBBPSC	5	149	305.3	215.0	2.7	157.3	270.1	400.4	1144.0
205	100	1400	NBBPSC	6	150	313.0	243.6	3.5	151.3	267.5	425.7	1302.9
205	100	1400	NBBPSC	7	161	289.3	210.9	1.6	158.5	256.1	378.3	1064.4
205	100	1400	NBBPSC	8	143	299.9	227.2	5.0	124.2	248.7	433.4	1175.8
205	100	1400	NBBPSC	9	151	288.1	204.8	1.4	93.7	242.5	431.0	914.4
205	100	1400	NBBPSC	10	144	292.3	202.7	1.2	117.0	273.2	410.3	1075.1
205	100	1400	NBBPSC	11	162	265.9	191.3	1.2	102.7	249.4	385.2	1173.5
205	100	1400	NBBPSC	12	14	314.0	193.5	0.3	152.2	367.1	454.9	519.8
206	100	1400	NBBPSC	1	4	247.4	133.0	122.5	142.9	234.4	338.9	398.4
206	100	1400	NBBPSC	2	139	182.1	111.6	0.3	100.6	171.3	239.8	606.7
206	100	1400	NBBPSC	3	156	191.6	125.5	0.4	98.9	188.7	246.2	744.8
206	100	1400	NBBPSC	4	159	190.2	121.3	0.3	98.4	192.3	253.0	747.5
206	100	1400	NBBPSC	5	168	207.0	132.6	0.4	105.2	189.7	280.9	681.0
206	100	1400	NBBPSC	6	155	198.9	132.6	0.9	104.0	172.5	282.2	734.4
206	100	1400	NBBPSC	7	182	180.0	134.1	6.4	80.7	148.8	247.0	709.9
206	100	1400	NBBPSC	8	151	188.5	123.3	1.6	94.4	167.1	249.9	675.6
206	100	1400	NBBPSC	9	178	175.0	118.1	6.0	84.9	160.5	236.8	663.0
206	100	1400	NBBPSC	10	142	180.7	135.7	5.4	84.8	158.5	222.5	695.7
206	100	1400	NBBPSC	11	178	179.1	127.9	0.8	92.4	143.7	233.1	705.4
206	100	1400	NBBPSC	12	20	201.0	124.6	6.5	101.7	216.6	272.8	455.6
207	100	1400	NBBPSC	1	7	166.9	119.6	16.1	87.4	138.8	244.1	350.2
207	100	1400	NBBPSC	2	126	251.5	165.9	2.3	139.7	248.4	323.6	845.8
207	100	1400	NBBPSC	3	159	249.3	164.6	4.8	135.4	237.1	301.2	893.4
207	100	1400	NBBPSC	4	170	236.3	161.4	11.1	133.7	205.3	297.1	948.5
207	100	1400	NBBPSC	5	154	204.2	148.2	1.8	100.4	188.8	276.9	877.4
207	100	1400	NBBPSC	6	152	222.4	154.4	6.6	102.2	209.2	298.3	799.9
207	100	1400	NBBPSC	7	162	212.0	129.9	0.3	123.9	199.0	287.0	768.0
207	100	1400	NBBPSC	8	158	218.7	164.9	4.3	104.1	206.4	287.1	969.6
207	100	1400	NBBPSC	9	177	231.8	173.7	2.4	112.3	214.8	299.7	883.3
207	100	1400	NBBPSC	10	142	206.8	161.3	3.6	82.0	169.2	290.5	920.3
207	100	1400	NBBPSC	11	151	203.6	132.0	1.1	100.3	193.1	275.8	787.3
207	100	1400	NBBPSC	12	7	264.8	273.5	17.7	123.7	190.6	275.6	846.7
208	100	1600	NBBPSC	1	8	323.9	127.6	191.2	254.8	288.2	353.0	584.0
208	100	1600	NBBPSC	2	145	475.5	322.1	14.7	254.7	399.7	697.8	1687.6
208	100	1600	NBBPSC	3	135	478.9	354.5	15.2	235.7	397.7	645.2	1726.7
208	100	1600	NBBPSC	4	156	482.0	301.6	7.4	263.6	443.1	647.5	1686.1
208	100	1600	NBBPSC	5	150	443.2	299.3	14.6	206.4	414.6	613.0	1599.0
208	100	1600	NBBPSC	6	148	446.6	328.1	3.8	227.5	371.1	603.7	1692.3
208	100	1600	NBBPSC	7	158	422.6	287.1	3.0	186.0	422.1	598.0	1711.5
208	100	1600	NBBPSC	8	146	478.1	369.2	6.5	205.1	424.9	647.0	1727.4

208	100	1600	NBBPSC	9	148	436.0	333.9	9.7	158.4	402.7	639.5	1650.3
208	100	1600	NBBPSC	10	142	437.1	313.1	19.0	179.0	411.1	593.1	1593.2
208	100	1600	NBBPSC	11	165	387.0	233.7	12.0	187.8	375.6	552.2	1000.4
208	100	1600	NBBPSC	12	14	420.4	236.7	18.7	267.1	469.1	623.5	708.8
209	100	1600	NBBPSC	1	5	522.6	215.6	236.4	401.5	511.7	702.0	761.4
209	100	1600	NBBPSC	2	131	386.2	277.5	0.2	180.6	319.0	546.0	1496.3
209	100	1600	NBBPSC	3	150	405.7	303.1	0.3	183.2	354.5	541.9	1510.2
209	100	1600	NBBPSC	4	154	382.8	230.8	0.6	230.3	343.6	526.4	1244.1
209	100	1600	NBBPSC	5	161	438.3	302.4	12.6	222.1	419.7	578.1	1416.9
209	100	1600	NBBPSC	6	146	409.0	275.7	5.8	223.7	361.4	549.9	1416.7
209	100	1600	NBBPSC	7	175	385.5	326.4	6.8	135.1	318.3	502.9	1639.2
209	100	1600	NBBPSC	8	145	408.8	295.5	16.6	203.9	367.1	532.1	1619.2
209	100	1600	NBBPSC	9	169	359.4	237.9	0.5	177.5	358.1	494.8	1323.3
209	100	1600	NBBPSC	10	138	346.7	241.4	9.1	137.2	316.7	488.0	1476.4
209	100	1600	NBBPSC	11	165	373.5	229.6	0.8	205.4	354.9	511.2	1094.5
209	100	1600	NBBPSC	12	20	363.2	226.9	24.0	188.0	405.6	536.1	760.5
210	100	1600	NBBPSC	1	7	339.3	293.0	40.1	166.8	294.1	401.3	904.8
210	100	1600	NBBPSC	2	133	401.7	289.1	5.4	208.8	362.1	513.2	1540.1
210	100	1600	NBBPSC	3	161	358.8	213.9	1.7	206.9	346.5	482.2	1360.5
210	100	1600	NBBPSC	4	176	358.4	245.7	5.2	205.4	324.6	449.7	1543.8
210	100	1600	NBBPSC	5	151	288.9	180.8	17.2	155.9	265.1	382.7	1084.7
210	100	1600	NBBPSC	6	158	366.1	263.7	2.8	193.4	317.0	502.8	1483.7
210	100	1600	NBBPSC	7	162	340.4	245.5	5.0	176.9	289.7	436.4	1458.9
210	100	1600	NBBPSC	8	161	311.1	187.9	18.9	149.2	313.1	425.0	1063.3
210	100	1600	NBBPSC	9	183	342.0	251.6	17.7	144.9	299.8	451.6	1449.9
210	100	1600	NBBPSC	10	142	311.7	211.4	33.6	142.8	275.5	434.5	1167.0
210	100	1600	NBBPSC	11	150	329.0	234.8	10.4	152.3	296.8	431.6	1347.4
210	100	1600	NBBPSC	12	6	247.7	135.8	38.8	179.7	281.0	303.8	427.8